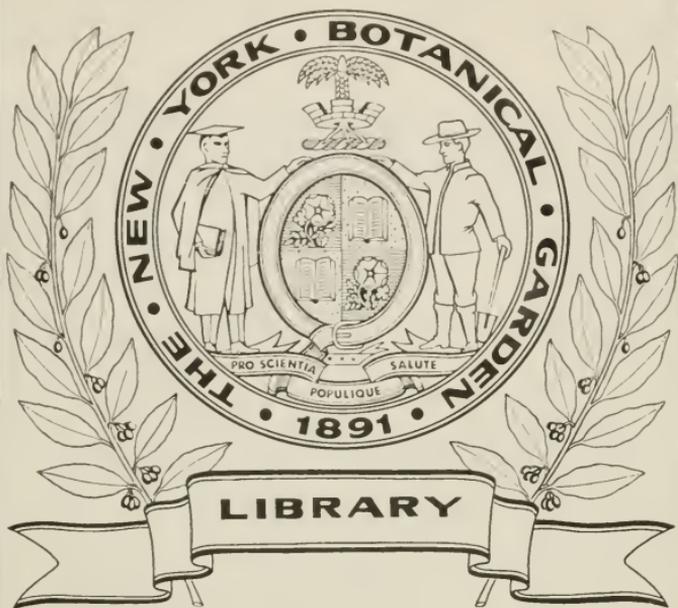


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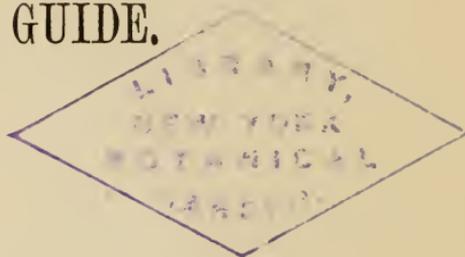
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THE
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GARDEN GUIDE.



EDITED

BY

SHIRLEY HIBBERD, ESQ., F.R.H.S.

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THE HISTORY OF GREAT BRITAIN

BY SAMUEL JOHNSON

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THE FLORAL WORLD

AND

GARDEN GUIDE.

JANUARY, 1868.

ROUGH AND READY GARDENING.—No. I.

SPRING FLOWERS.



IT is the custom to refer to Cliveden when persuading people to grow spring flowers. For the sake of appearing original, I shall not refer to Cliveden or any other den, and I have the good excuse that the Duchess of Sutherland can indulge her tastes in the gardening way to an extent that very few of our readers can ever hope for; and hence what is done at Cliveden may not be possible in any of the ten thousand smaller gardens the FLORAL WORLD has to provide for and think about. This, of course, is not meant as any disparagement of Mr. Fleming's work; the fact is, and we are not ashamed to own it, his work is too much, too big, too grand for humble folks of our stamp to regard it as the best possible example to imitate; and, besides, we don't want to imitate anybody, and for this present we won't think of Cliveden any more, but just take comfort of the fact that there are such things as primroses and violets which "have a name in story." Yes, there are such things as primroses, and very soon we shall see them peep out from the hedgerows to look for the coming spring, and we shall perhaps see them blinded with snow and rain through looking out too soon; and yet on the first sunny day that follows they will all be staring as before, and mutually averring that the spring *is* coming. Even while writing this, on the 16th of December, we have on the table a great bunch of freshly-gathered polyanthus flowers, gathered from a field close by, where we have a plantation of these charming plants. They have been flowering since the end of October, yet in April they will break forth into their accustomed spring glory, as if not one of their buds had been wasted in the winter season. To ask who loves spring flowers is about as foolish as to ask who loves food. If I venture to ask now, you will all reply at once, and compete in loudness and earnestness, for do I not know of your love? Have we not met upon this theme aforetime, and felt as if it was quite a discovery, a surprise, a delight never heard of before, that there really are

primroses, and that those of us who live till *next* spring will see them shining out like eyes, or stars, or jewels, from the newly-thickening herbage. To be sure; and why, then, in these days of haste and dullness, waste another line in any sort of gushing, but go to the practical business at once, and let us see what are the best of the spring flowers, and where and how we shall grow them?

Now, I must tell you that I have before me a list of about three hundred species and varieties of plants that flower in spring, and in looking through it I am constrained to say it must have been prepared by a man (or a monster) who clutched at names and was ignorant of things. I might reproduce that list, and in so doing perpetrate a dreadful wrong against all those readers who happened to put faith in it. The author of the list enumerates crocuses so many, that a man must be crocus mad and a downright croaker who would take a moment's trouble to obtain any of them; and then, when we look into the list, we find a lot mentioned that are really not to be obtained at all, and are not to be found even in botanical gardens. So he goes on, to use an expression of the renowned A. W., "making an ass of himself generally." In this same list are nine species of Trilliums. Now it is true they are charming plants; but nine-tenths of simple people who should buy and plant them would be sure to lose them, and that very remark suggests the desirability of a paper on Trilliums shortly. The moral of these remarks is, that mere lists are of no value at all; people want to know first of good things that may be obtained without difficulty, and that may be grown anywhere. What they want after that desire is satisfied does not much matter. Let us address ourselves to the subject of spring flowers for everybody and everywhere.

First, then, where are the spring flowers to be grown? I have just remarked on my great plantation of Polyanthus. These are grown for plunging. When they are just coming into flower they are taken up, transferred to their proper places in the plunge beds, tucked in comfortably with cocoa-nut fibre, kept regularly watered, and as soon as they begin to look shabby, or we are tired of them, they are taken back and planted properly, and that is all the cultivation they get. They increase by two methods: the bed where they remain all the summer becomes quite weedy with little seedling plants, which, when the flowering plants are removed, are transplanted to a nursery quarter, and the old plants occasionally require to be divided, because of their rapid increase in size. Now and then, in looking over them, I find a few of the true florists' type; these are at once labelled, and at the first opportunity are potted, and have the attention due to florists' flowers. Some of our laced varieties raised in this chance way are first-rate, and have taken a due share of exhibition honours. Now, what is to prevent you, my friend, from having your display of Polyanthus in the same way, without interfering at all with the summer bedding plants? All you want is a bit of reserve ground quite open, and the soil nicely prepared by means of spade and manure. So again we have large stocks of the yellow Alyssum, the common white

Arabis, and the white evergreen Candytuft, the smallest leaved and dwarfest growing kind being the best. All these are treated in the same manner; they are grown in the field in company with the trial crops, and they come home on a visit when wanted, and go away again when the visit is at an end; and there are no pots used at all, they are just planted into beds and borders of cocoa-nut fibre, and left until they have done flowering. This is an expansion and simplification of the plunging system, and it will suit everybody who can find room to grow the plants during the eleven months or so that they are not particularly wanted, and even all that time they are interesting, and will afford abundance of flowers for cutting.

But so far we have dealt with only four sorts of spring flowers. The reason is, that those four are capable of bedding effects of the most splendid kinds, and we require them to follow masses of crocuses, hyacinths, and tulips; and, moreover, they bear with perfect equanimity the treatment they are subjected to, and lift with good balls, so that the roots suffer but little. Now for a few more. In the home garden we have a couple of borders in front of a plantation of roses, which are appropriated entirely to hardy herbaceous plants. Here we revel in spring flowers. Here we have a grand mixture of all sorts of things—primroses double and single, and of half a dozen colours, wallflowers double and single, rockets, forget-me-nots, dog's-tooth violets, and many more of early-blooming gems. When the true spring flowers are past, the summer flowers "take up the pleasing tale," and when the Irises have finished, the Delphinium, the tall varieties of Lobelia, the hardy Geraniums, many sorts of Dianthus, the Campanulas, and a host of others, follow; and then come the Gladioli, from bulbs planted in March and April, the Phloxes, the Pentstemons, and the Anemone Japonica—loveliest of autumn flowers—etc., etc.; through all the year there are flowers in plenty. Now I will just suppose that many of our readers have such a border, or would like one, and will therefore suggest a course of procedure likely to render it a pleasure every way and a triumph of floral art. A sound sandy loam, and a quite open breezy position, are the best conditions for this kind of gardening. On a quite sandy soil in the open country wonders may be done; but let us consider first the common loam which is found almost everywhere, and for spring flowers what shall we do with it? First, then, dig it deeply; if it is good for a depth of two or three feet, have it trenched, as if carrots were to be grown on it, and left for a time to be mellowed by the frost. Then lay on a heavy coating of good rotten manure, and have it well dug and broken up again. Many people never manure for flowers, but really, if you want them fine, you must feed them, strong-growing kinds especially. When made somewhat fine by thorough good digging, you may plant, and when you plant the ground must be rather dry, and every plant must be closed in next the collar carefully, so as to be left firmly in its place. The proper time to plant a herbaceous border is the month of October, but every one cannot plant at that season, and the fact is, they may be planted at any time except when the ground is frozen. Suppose any of our readers are now thinking of making a start in the

growing of spring flowers, our advice would be, make the ground ready, have some distinct idea of what you mean to do, and then wait till the plants are in flower, and buy and plant them. If you want your parterre to be rich, and have not the stuff to make it so, look out when the season comes for a lot of alyssum, polyanthuses, pansies, candytufts, and arabis, and *plant them while in flower*, and when their flowering is past transfer them to a reserve plot, and let them grow as they please to prepare them for the next season.

For such borders as I have in my mind, and which I hope are to be found in the gardens of every one of our readers, the plants which follow are such as I should first prefer.

PANSIES of the bedding type, such as *Maggie*, *Trentham Yellow*, and *Trentham Blue*, and a few of Downie, Laird, and Laing's showiest fancy pansies. These will grow in sun or shade. Plant them, leave them to take care of themselves; in the spring peg down their long runners, and cover the joints with fine earth. In autumn take them up and divide them, making new tufts of the rooted joints, and give away the surplus. This is not the proper way to grow pansies, but it will do for such plain folks as love spring flowers, and do not aim at becoming florimaniacs.

VIOLAS and pansies are near akin, but there are not many true violas to be taken for this rough and ready system. Plant a few tufts of a Russian violet called *the Czar* in rather shady sheltered places, and you may get some deliciously-scented double flowers. Plant also a few tufts of *common sweet violets*, and hope for flowers, but be not disappointed if you get none. Violets in gardens require good cultivation, and a reference to almost any past indices of the FLORAL WORLD will guide the reader to information on the subject.

CHRISTMAS ROSE.—Plant whenever you can *Helleborus niger* in a cool, shady, moist place—the more sheltered the better. Leave them alone for ever, and you will always have flowers in February and March. Plant also in the same manner, and never disturb it, *Helleborus olympicus*, and wait for the result. It is astonishing how well the species of *Helleborus* thrive in rather dark, rather sour, rather neglected spots, if left alone. We have them in places where scarce anything else will grow, and they flower superbly; and we have them also treated as frame plants, and they pay for frame treatment.

PRIMULAS.—The *Polyanthus* must take the lead in this section, and if any of our readers want a good stock to begin with, they have only to apply to Mr. Webb, of Calcot near Reading. Never mind what has been said about growing the laced varieties in pots. The rough and ready method requires them to be planted and left alone. When they grow too large, take them up in autumn and divide them, and in showery weather in the spring is the best time to transplant the self-sown seedlings. In our collection are many called "giant" kinds, which produce enormous trusses of very showy flowers, some of them rich crimson, some rich puce, violet, chocolate brown, and some jet black. Next we must have tufts of *Primroses*, such as the *common Primrose*, of which in every garden there should be a thousand at least; and they may be planted

in all sorts of places—in the shade, the sun, anywhere. Then we must have two or three tufts, to begin with, of the *Double White*, *Double Lilac*, *Double Yellow*, and *Double Crimson* primroses, all of them loveliest of the lovely, but wanting better places than the common primrose of the hedges, therefore we assign these to the choice border, and have no objection to see a few beds filled with them. Mr. Webb has thousands of these.

AUBRIETIAS.—These lovely little plants will not thrive anywhere. They must be in open breezy places, not in stuffy, or damp, or vermin-haunting corners. Put them on knolls, and on slopes, and in sunny borders, and leave them alone until they become too large; then take them up in August, and divide, and plant again. You must have *A. deltoidea*, *A. Campbellii*, and *A. Mooreana*. They are quite unfit for the plunging or transferring system, not being showy enough, and not flowering well unless left undisturbed.

NARCISSUS.—Plant them in clumps of five to ten bulbs each, and let them remain; they will spread more and more every year, and flower finely. The best for the rough and ready gardener are, first, the *Common Double Yellow*; this will grow anywhere, even in the most shady places; next, for the borders, *N. bulbocodium*, *N. bifrons*, *N. odoratus*, *N. conspicuous*, and *N. pseudo-narcissus*. These six sorts are enough, but the collector may have sixty, and they are all pretty. Any soil will suit them, and they grow well in pots, but are of no use for the plunging system.

CROCUS.—Half a dozen sorts are enough for most gardens. The best are *Barr's Superb Yellow*, *common white*, *common blue*, *Sir Walter Scott*, *Queen Victoria*, and *Mont Blanc*. Plant four inches deep in autumn, and leave them untouched three years; then take up and plant again. If you now have a lot of crocuses that have become mixed, wait till they are in flower, then take them up, and replant them as you wish them, and as they will remain.

A few years ago, in superintending some improvements in an old garden, it became necessary to take up a lot of crocuses and snowdrops. The first were in full bloom, but the snowdrops had just done blooming. Not liking to destroy them, I had them dibbled in six inches deep in odd parts of the lawn. They flowered the next season, but rather poorly, much better the next, and have since then quite covered the ground with their charming flowers, every year making it truly an enamelled mead. In those parts of the lawn where these flowers are, it is the rule now never to mow the grass till quite the middle of May.

S. H.

PALMS FOR SMALL PLANT-HOUSES.

BY A PRACTICAL HAND IN THE ROYAL GARDENS, KEW.



F I were only going to grow three palms, I should select *Latania rubra*, a *Calamus*, and a *Chamædorea*. This *Latania* is a magnificent plant, with fan-shaped leaves, the petioles and ribs of the leaves of a crimson or deep rosy colour. It must be kept in mind that they vary a good deal in this colouring, and if I were buying a plant I should take care and go to the nursery and select the plant which pleased me best. *Latania aurea* is in the same way, but yellow instead of red. I have never yet seen a specimen of either of these species with a stem; there is, therefore, not much fear of its becoming too large very soon. Besides, if it should ever grow too large for the space at your command, any nurseryman would take it, and give you in exchange something which would suit you better. I should say that any person might buy a young plant, and after having had the pleasure of growing it for eight or ten years, find that it would be worth something good in the way of exchange.

All the species of *Chamædorea* are graceful, elegant, and not likely soon to overgrow themselves; in fact, few of them attain a height of more than ten or twelve feet. *C. elegans*, with a thin stem crowned with a tuft of gracefully drooping pinnate leaves, is a perfect model of all that one could admire. *C. graminifolia* is equally beautiful, the divisions of the leaves long, grass-like, drooping. *C. Ernesti-Augusti* has broader divisions of the leaves, without the inclination to droop. The inflorescence of this and some other species adds very much to the attraction of the plant. One might easily give the names of some eight or ten more kinds of *Chamædorea* which would be equally valuable as decorative plants.

Several kinds of *Calamus* are as well suited to our purpose. They are small in growth, with pretty drooping pinnate leaves, the petioles and stems of many kinds covered with black shining spines which add not a little to their beauty. The Calami are all natives of the eastern hemisphere, Africa, and the East Indian Islands; while all the species of *Chamædorea* come from tropical America. *Calamus Verschaffelti* is a newly introduced species from Madagascar, the narrow leaflets of which are somewhat silvery beneath, the stem brownish, with long slender spines pointing backwards.

Those of which I have spoken are all stove plants, and I ought to have added *Areca lutescens*, a very gracefully habited plant, to the list; but the fact is, one might go on through a dozen pages describing palms, every one of which is perfectly beautiful; but one must make a sudden pull up somewhere. I am ashamed of myself that I have said nothing of *Bactris*, *Ceratolobus*, *Geonoma*, *Licuala*, *Thrinax*, and other genera; but start with a few good species first, and if you want any more, write and say so, and you shall have a select list of another dozen or two. If I leave off here, you may think there are no palms but those requiring stove heat. This would be a great

mistake. I can call to mind a splendid specimen of *Chamærops humilis* which was grown in a conservatory with camellias and oranges, being evidently perfectly at home there. There are several others which would do well under the same treatment—natives of the United States, Australia, New Zealand, Norfolk Island, and Japan. Lastly, a fine plant of *C. Fortunei*, has been growing in the open ground for five years past in the garden of the Royal Botanic Society, Regent's Park; and at Osborne this glorious palm is as hardy as a weed.

THE COST OF CULTIVATING PINES.



HE letters of correspondents often suggest to us subjects we should never otherwise think of. One has lately inquired if pine-growing is a pleasure reserved solely for millionaires; and I propose to reply as far as I am able, and leave him to form his own conclusions.

The interior of our pine pits cover an area of 500 square feet, divided into three compartments—a first and second succession-pit, and a fruiting-pit; and as we have no pathway inside the whole of that space it is occupied by the plants. In this space we have now growing in all stages plants to the number of 136; of these 42 are now showing signs of fruiting, some just putting up, some in bloom, and others forming their pips; while in the fruiting-pit some are fast swelling off, and others are ripening, so that out of the above number of plants, if nothing unforeseen occurs, we can safely reckon upon cutting fifty or more fruit between this time and the end of the year; and as our plants are mostly Queens, they usually average from 3½ to 4 pounds each.

Having thus briefly given our convenience for pine-growing, and the results attending it, I will now give the expenditure necessary to produce a like result, or, in other words, the average yearly outlay here.

	£	s.	d.
One Year's supply of Coke	17	8	0
Ditto Tan	4	12	0
Ditto Soil	0	16	0
Ditto Sand	0	4	6
Ditto Rotten Dung	0	8	0
Ditto Pots	0	12	6
Painting, Repairs, etc.	2	5	9
Repairs of Leakage, Boiler, etc.	0	15	0
	<hr/>		
	£27	1	9
If we add to this an average of two hours of labour daily throughout the year, we must not say less than . . .	15	0	0
	<hr/>		
Which makes the total	£42	2	0

From the above statements, L. M. will learn some of the most

important items in pine-culture : but I would warn him not to accept these statements as a guide to any other locality.

As the locality in which this is written I consider a favourable one for pine-growing, as most of the materials are to be got close at hand, consequently the cost of carriage is greatly reduced, my correspondent will see the force of what I say if he happens to be so unfortunate as I once was in having to fetch tan eight miles by waggon loads. Then again, the boiler we have in use is much too large, and is capable of doing more than double the work we have for it to do ; hence the cause of so large an item for fuel. I need scarcely add that pines may be grown on a much smaller scale, and in that case the expenses would be proportionately reduced. Before I leave this part of the subject, I would point out one more item to my correspondent's notice—it is that in engaging the services of a man who has a practical knowledge of pines, he must expect to remunerate him accordingly.

I have never grown them for commercial purposes, and have therefore no means of knowing their market value, but think from what I have here stated (and I have confined myself to facts) that my correspondent will be able to draw his own conclusions, and act accordingly. Suppose we reckon the cost of pines home grown to be £1 each, they will be worth more than that in the market.

C. C.

THE CULTURE OF PRIMULA SINENSIS.

BY JOHN F. M'ELROY,

Head Gardener at Moray Lodge, Campden Hill.



FEW days ago I had a friendly visit from two gardeners whose names are familiar to the horticultural public, they being amongst the number of the principal exhibitors at our leading metropolitan exhibitions. In the course of their survey of the collection of plants under my charge, the Primulas elicited their admiration. Not that they are extraordinary large plants, for the majority of them are growing in 48 size or five-inch pots ; but the plants are thrifty and promise plenty of bloom, many of them being already in flower. But apart from that, the superior strain of the flower combined with their treatment formed the themes of their inquiries, and here I consider it would only be justice for me to say that the seeds were purchased of Mr. B. S. Williams, of Victoria Nursery, Holloway, who has for some years past been famous for his very excellent selection of this popular greenhouse flower.

As the general culture of this plant has been frequently treated on, and that elaborately, by competent writers, both in these pages and elsewhere, it may appear almost unnecessary for me to say anything respecting it ; but as two opinions seldom harmonize in regard to the merits of things generally, it may occur that there is some-

thing valuable to the reader to be gleaned from either side. With this impression, I will simply detail my system of culture, commencing with the rearing of the tender seedlings. First, I would say that seedsmen are often undeservingly condemned for vending old or indifferent seed because the grower has failed to vegetate it. The complaint is not uncommon, but I fear that if it was investigated, the result would be that in many instances it was not the lack of vitality in the seed, but inattention on the part of the cultivator to simple rules both at the time of sowing and the interval that must elapse up to the period of the seeds vegetating. Some of the seed catalogues annually repeat the best of advice as to the mode of rearing the young seedlings, yet people who have such catalogues to refer to frequently fail.

In preparing the earth for sowing, let the pots or pans have plenty of drainage, and in filling them with soil allow an inch or more from the brim of the pot to remain unfilled; the surface of the soil should not be too fine nor yet too coarse. Give the soil a good soaking before you sow the seeds, after which let it remain for a few hours, when it will be sufficiently settled to permit you to stir the surface with a pointed stick. Then scatter the seeds over the whole, and let the same have a slight covering of silver sand. The great evil to avoid is depositing the seed too deep in the earth. Another essential is to endeavour to maintain the earth containing the seed in a constantly moist state, without having to supply it repeatedly with water. The best way to do this is to tie paper or any similar material over the pot, somewhat after the fashion the cook does with the preserving jars or in roasting a fowl. They should then be placed in a shady part of the house or frame. That you may assist in keeping the earth moist, occasionally pour water on the covering in such a way that it will gradually penetrate through. Directly the seed shows signs of vegetating, remove the covering, or the seedlings will quickly be so lanky and weak as to be worthless; in fact, in such a state great numbers of them will die off. Still, let them be shaded from the sun's rays although exposed to the influence of the light. In the earlier stages of their growth they require much care to prevent them damping off; my method of watering them while they are as yet in their seed pots or pans may be considered novel, and that is to dip my hand into a can of water and then allow it gently to drip from my fingers among the young seedlings. It quite repays you to practise this little piece of coddling till they become strong enough to bear watering in the usual way. When you consider they are ready for the purpose, prick them out singly into thumb-pots; after which place them in a box-frame or any similar construction, let them be kept shaded from the sun's rays, keeping them rather close, and affording them very little air. Here I would observe that nothing is gained by sowing your seed too early; because, as a rule, the plants do not commence growing till the middle of July, and then it behoves you to give them all the encouragement you possibly can, as from that time till the latter end of October, they will grow very fast. If they begin to throw up flower-stalks before they have completed their growth, pinch them out. The most suitable sized

pot to grow them in for ordinary purposes is a five-inch or 48 size ; for later flowering, use six-inch, or 32 size pots. The soil in which they thrive best with me is leaf-mould thoroughly decayed, mixing with it about a fourth of mellow loam and silver sand. Let the plants be potted firmly in the soil, be careful not to allow water to lodge in the crowns of the plants. The white varieties especially suffer from an excess of moisture.

CULTIVATION OF SPECIMEN CHRYSANTHEMUMS.

BY ADAM FORSYTH,

Of the Brunswick Nursery, Stoke Newington.



HAVE great pleasure in complying with your request for an account of my mode of treating the chrysanthemum as a pot plant. I attribute my success during the past ten years of my experience as an exhibitor at the London shows, much more to my constant watchfulness of my plants than to any secrets of management. However, if there are any secrets I now unfold them, for in the following short essay I have made no reserve ; therefore I can honestly say that what I have done, henceforth every reader of the FLORAL WORLD may do.

SPECIMEN PLANTS.—In treating of the cultivation of the chrysanthemum in pots, I shall commence with the varieties that are most suitable for growing as specimen plants, such as are shown in eleven-inch pots, with round heads, three to five feet across. The cuttings should be established in three-inch pots by the middle of March ; they are then stopped—that is to say, their points are pinched out. This induces them to throw out numerous side-shoots ; this stopping, or pinching back, as it is sometimes called, should be done with care and discretion, for as the object is to secure as many laterals to start with as possible, the extreme point of the shoot only should be taken off, for I have invariably found that treated thus they throw out more freely. About the first week in April the plants are ready for shifting into six-inch pots, and I may remark here that *nothing is more injurious to chrysanthemums in the early stage of their growth than allowing their roots to be confined or cramped* ; therefore, as soon as they have filled the pots, they should be immediately shifted to the next largest sized pots. The plants are kept in a cold pit until about the middle or end of May. The lights should be taken off on all favourable occasions, and the plant frequently syringed overhead to keep the foliage clean. As soon as I consider the weather sufficiently forward that there is no more probability of frost, I plunge them about half-way up the pot in a sheltered but open piece of ground ; and in order to prevent the worms making their way into the pots, I stand each upon a piece of slate, or perhaps what might do as well, a small pot inverted. They remain here until about the end of June

being stopped or pinched in the meantime when necessary; they are then shifted into their flowering pots, which measure eleven inches across inside, and are plunged as before, their shoots being secured with sticks, to prevent the wind breaking them. About the middle of July the plants are stopped for the last time (I may here observe that I never shift and stop at the same time). After this they require a little more attention in the training and regulating their shoots, which I keep tied down as near the rim of the pot as possible; this is more easily done now than when they have made their growth, on account of the brittleness of the wood when older. About the middle of September they are trained into something like the shape they are intended to be when in flower—that is, a round, bush-like form—in order that the plants may be seen to equal advantage from any side; the one-sided plants so frequently seen at exhibitions being, in my opinion, most objectionable. As soon as the flower-buds make their appearance, I disbud, leaving only one to bloom on each shoot, as I consider quality of flower much better than quantity, more especially as by a little judicious management I can get from 100 to 150 good flowers on each plant. I use manure-water liberally until the flowers show colour; indeed this may be applied until the blooms are fully developed. I generally house them about the second week in October; but in this I am guided by the state of the weather, for they are better outside until the buds show colour, the foliage being improved by remaining in the open air as long as possible; it being a very important feature in a plant to have the leaves of a nice healthy green down to the very edge of the pot. When housed, I give all the air possible, when the state of the weather permits. I treat pompones in every respect the same as the large-flowering varieties, except that I do not disbud to the same extent.

SPECIMEN FLOWERS.—The varieties most adapted for growing for the purpose of obtaining blooms of extraordinary size, or perfectly symmetrical shape, seldom make good specimen plants, being usually of a robust habit, consequently not so easily trained to form a compact head, and, moreover, do not bloom so freely. The magnificent stands of cut blooms to be seen at the metropolitan and local exhibitions show to what a state of perfection this flower can be brought by skilful management; indeed, by a careful selection they may be had in flower from October to the end of December. The general treatment of this class is the same as that directed for the growing of specimens, except that the shoots *should never be stopped or pinched back at all*. Most growers for exhibition put two plants in a ten-inch pot, and allow each plant to run up with a single stem. As they grow vigorously, it will be found they will naturally throw out several shoots, or breaks, as they are called, but not more than three or four of the strongest of these are allowed to remain on one plant, and a single bud only is allowed to grow on each shoot; all but the terminal ones should be carefully removed as soon as that can be done without injury. The whole strength of the plant is thus thrown into the three or four buds that are left for flowering.

STANDARDS.—These are useful to break the monotony of a display, as their round heads on clear stems stand up above the dwarf trained plants, and have a very beautiful appearance. In case the reader is not familiar with the various forms in which the chrysanthemum is grown, I may say that a standard bears a near resemblance to a standard rose when the head is round and well furnished, and completely covered with flowers. The merest beginner may grow very pretty standards by following the directions I give, but it requires some practice to produce standards of first-class excellence; hence we do not often see at exhibitions good examples of this class. Some growers keep their standards several years, and the stems thereby become very stout and strong, and, if well managed, they have fine heads. But all the standards I have exhibited have been yearling plants—that is to say, raised from cuttings, and grown to full dimensions in one season, after which they are destroyed. The reason I prefer yearling plants is, that the old ones are not to be depended on; the old wood may die in the winter. The large-flowering kinds are not well adapted for standards, though a few, such as Little Harry, for instance, might be managed successfully. As ornaments for the dinner-table are in demand, I would suggest to practical gardeners that standard pompones are admirably adapted for the purpose, as they do not interrupt the view across the dinner-table—their heads being above the line of vision when the guests are seated, and they have a delightful appearance under artificial light. The way I treat them is similar to the others. I select good strong cuttings as early in the spring as possible, and, when well established in small pots, they are shifted into 48's, kept in the greenhouse, and staked the height I want the stem to grow, which is generally from two feet six inches to three feet. After they have attained that growth, they are then stopped in the same manner as I have before explained—the secret being to get as many breaks as possible from the first stopping, to form the framework of the head; all side-shoots on the stem must be removed, but not the foliage. I invariably shift them for the last time about the middle of June; they are then plunged like the others, secured at the neck of the plant to prevent the wind breaking them, and liberally supplied with manure-water. The varieties best adapted for this purpose are the early and free-flowering sorts, so that they can be stopped a fortnight later than the others. As a long season of growth is desirable, the amateur may be led to take autumn cuttings for the formation of standards. I feel bound to say that experience has taught me that *spring cuttings are far preferable*, as they can be kept growing from the first; and they have such health and vigour that, if properly cared for, they make fine free heads, which plants from autumn cuttings will not always do.

The young buds are apt to suffer much from the attacks of green-fly. Whenever this pest makes its appearance, the tips of the shoots should be dipped in tobacco-water, or, what will perhaps have a more permanent effect, be dusted over with dry snuff. The earwig is also a great enemy to the chrysanthemum, and should be destroyed by every available means; trapping with short lengths of

bean-stalks, laid on the ground, and with small pots with a little moss in them inverted over the tops of the flower-sticks, are the best means.

The compost I use is one-half rich loam and one-half well-rotted dung, with a little leaf-mould, and a liberal sprinkling of sand added. The pots are drained with oyster-shells, and pounded oyster-shells may be advantageously mixed with the compost.

The manure-water used is made up in the following way: I have a large tank, into which I put a sackful of soot, and a barrow-load of cow or sheep's dung, or a half of each, it being filled with rain-water; the whole is stirred frequently for a few days, and then left to settle before being used.

THE VILLA KITCHEN-GARDEN.—No. VII.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



THE CAULIFLOWER is a most useful subject, and one generally appreciated upon every table. The secret of success in cultivation is to grow them in rich, well-prepared ground, so that they may complete their growth, without any check, to a speedy maturity. To secure this important object, a fertile spot in which to grow them is the first consideration, while the minor points of attention consist in keeping them liberally supplied with manure-water during dry weather, and frequent stirrings of the surface to keep down weeds, and to check evaporation.

The principal sowing should take place about the 25th of August for plants to stand through the winter. The position of the seed-bed should be in an open spot, if possible, on a south, or south-west border. The bed to be well prepared and watered if the soil be dry; the seed sown thickly, and covered with half an inch of fine soil. A look-out for birds must be kept as soon as the seedlings show themselves; also for slugs, and other vermin. Encourage them to grow freely by the aid of repeated doses of water, if there is any lengthened absence of rain; as soon as they show the rough leaf, sprinkle over the bed some fine dry soil. When the plants are dry, this will give them a kind of earthing, and induce them to grow vigorously.

About the first week in October draw out the largest plants, and prick them out on another piece of ground four inches apart each way; this will enable those left in the bed to get stronger, and those removed from it will, by the time they are wanted for the final planting, be stout, sturdy plants.

The most secure plan of wintering these plants is to let them have the protection of a cold frame or brick pit. Many pot them singly in small pots, and place them in these structures; others plant

them out in a bed of soil six inches apart. This latter plan is the best, as the plants have more room to grow, and their roots do not get so much cramped as those in pots. Whichever method is practised, the work should be done not later than the first week in December. If planted out in the soil in the frames, a depth of six inches will be required, and this should rest on something porous and open, such as long dry litter, or any refuse from the garden that would afford drainage without fermenting. A depth of ten to twelve inches will suffice. If the plants are in pots, they must stand upon a hard, dry surface, only be watered when they are dry, and in every case to be protected from severe frost, with the soil about them occasionally stirred up, and all decaying leaves picked off. They must have all the air it is possible to give them, both night and day, when it is not actually freezing; in this position they must remain till the middle, and in severe weather until the end, of March.

To secure a few earlier hearts than the foregoing practice admits of, they are generally planted five or six plants in a hand light about the beginning of December, in some warm spot in the garden; when these are well attended to, and protected from frost, they come in admirably for an early crop at a season of the year when they are most wanted. They require the same attention as those in the frames; in fact, these hand-lights might be made, if they are sufficient in number, to winter enough plants for a small garden, by placing them much thicker, and removing from each light all but three or four plants in the spring; those left not being disturbed. With the continued shelter of the lights, these will be far in advance of those planted out in the open quarters.

When they are removed to their permanent quarters, it should be done with great care, as many of the roots as possible, and a ball of soil, should be removed with them. Choose a still warm day, and if cold winds or frosts occur, place an empty eight-inch flower-pot over each, but remove again on the first break of the weather; the alleys between the asparagus beds answer admirably as sheltered spots for single rows if previously manured and dug up. The plants should stand two feet six inches from each other if they are expected to be fine. As soon as the roots begin to work in the new soil, draw some earth up round the stems. This will assist them to endure high winds without being blown about. No plant shows gratitude so soon for copious doses of sewage water as the cauliflower. The cultivator will, therefore, find it to his advantage to supply it liberally.

For this early crop I find the best variety to be the *Early London White*. For the summer crops the *Stadtholder* is the best; it is an early hearter, and very neat in its habit, and altogether a very desirable kind. This should be sown with the *Wacheren broccoli* in April or early in May. It will then come into use before it. The manner of sowing and pricking out is just the same as detailed above, but when planted out will do very well at two feet apart each way. If large heads are wanted, the *Asiatic* is a strong grower, and in a rich soil with plenty of room it may be grown to a great size.

In very poor or sandy soil it is sometimes difficult to maintain a supply of cauliflowers. When this is the case, a planting should take place about the first week in June, in some cool shady spot upon a north border; this will generally furnish a supply when it would be difficult to get them in open exposed situations about the end of August.

I may remark here that should any mishap occur that the plants are lost which were intended to stand the winter, a great deal may be gained by sowing a pinch of seed in a large seed-pan in heat early in February. When these are well up they may be pricked off into pots or boxes, and be nursed on until April, when they should be hardened off preparatory to being planted out. These will be about a month later than autumn-sown plants, but if it is a good growing season, they will be sure to come in usefully when peas are beginning to fail.

BALSAMS AND THEIR CULTURE.

BY JOHN F. M'ELROY,

Head Gardener at Moray Lodge, Campden Hill.



FEW years ago, and like early cucumber growing, what a laudable rivalry existed among neighbouring gardeners as to who should excel in obtaining balsams in the best possible perfection, cherishing as they did, with some degree of jealousy, the seed of their favourite varieties, which were famous for some peculiar superiority either in the size or substance of the flower, or else in the habit or symmetry of the plant. It is to be regretted that the cultivation of this once popular flower has been, to some extent, on the decline of late years; though we are pleased to observe, at some of our floral exhibitions, that Messrs. F. and A. Smith, of the Dulwich nurseries, have, by attention to their improvement, produced some most excellent varieties. So also Mr. Williams, of the Victoria Nursery, Holloway, devoted his attention of late to the careful raising of some superior sorts, a stand of which blooms was exhibited at the exhibition in the Royal Botanic Gardens, in July of 1866, and elicited the admiration of numerous visitors.

Our Continental neighbours, likewise, have been successful in the production of fine varieties, many of which are remarkable for size of flower. Although they describe a great many colours and shades of colours with the greatest minuteness, yet I think, on close examination, that there might be a considerable reduction made in their number, as when compared with each other it requires a degree of nicety few people possess to distinguish them, so closely are the shades allied. In their description of the habits of the plants, there may prevail such differences as they describe, but their enumeration of colours is extravagant. In looking over some of the catalogues,

as many as twenty-six, and in others nearly fifty, varieties are mentioned as imported from abroad. I will not presume to say that these are not all beautiful; but for any person who has not very extensive accommodation at his command, it would be useless to aim at cultivating more than twelve varieties; and as these should embrace most selfs in colour, it would be better to depend on the seeds that have been carefully saved from some home-grown collection, as I believe English growers are more anxious for decided colours, and as a rule abhor those indescribable and sometimes muddy half and quarter tints that Continental fanciers are so fond of.

The seed of the balsam is supposed to retain its vitality for a great number of years, and is said to improve by age, combined with the certainty of obtaining superior double flowers. I can say from experience, that well-kept old seed germinates nearly as quickly and certainly as the newest, but I am not prepared to say that the older it is the better.

I will now proceed to detail the principal outlines of culture; and although to the growers of rare stove and greenhouse plants their treatment may appear very simple, yet it must not be forgotten that all that is required of them, both in growth and production of flowers, has to be obtained within a very limited period; so that more than ordinary assiduity on the part of the cultivator is necessary, if perfection of plant and flower is his aim.

The seed should be sown in March, April, and May, but should never be deferred later than the first week in May. They are best vegetated in a moderate bottom-heat as soon as they are up; let the pot be elevated, so that the plants may have the benefit of light and air to prevent their being drawn up weakly. When sufficiently strong, and you can just perceive the appearance of their first rough leaves, prick them out about an inch apart into wide-mouth shallow pots or pans, keeping them still in the same heat. Be careful of the supply of water, or you may have numbers of them damp off; yet give enough to keep them growing freely, and shade during sunny days. When you think they have become sufficiently rooted in the soil as to bear being potted singly into 60-size pots, then separate them with care, by retaining some portion of the soil to their roots. When potting, let them be put in to the depth of their seed-leaves if possible, although by such practice a few may damp off if not closely watched. Otherwise it will promote a bushy habit in the commencement of the plant's growth, by causing the lower branches to be nearer the surface of the soil; and in every stage of potting the same process should be adopted. If you have the convenience, plunge the pots in a mild bottom-heat. A tan-bed, the heat of which is rather on the decline, is a capital place for them at this stage. When they have filled the 60-size pots with roots, pot them into 48-size pots. As they grow, let them have a gentle syringing every afternoon when you shut up. From these pots they may be shifted into their final or flowering pots, which should not be less than eight inches in width and depth. If large plants are your object, they may now be put into pits which have no bottom-heat, the only warmth being derived from stored-up sun-heat. To pro-

mote this storing of sun-heat, shut up early, and give them a good syringing at the same time, which will create a nice growing atmosphere. Let them have plenty of room, so that they do not crowd one another. If they should show flower-buds before they have attained the size you require, pick them off; this will concentrate the whole vigour of the plant into promoting its growth, and the growth being completed, the buds may be allowed to expand, and they will break into flower all over.

The insect which is most destructive to the balsam is the red spider, which sometimes attacks them just at the period when they are in full flower, thus shortening the duration of their blooming season. That you may guard against such failures, avoid anything that approaches a dry atmosphere while they are growing, and never let them once suffer from drought when in flower.

PLANTING UNDER TREES.



Tis very common to see in villa gardens huge blank spaces, where it is "said" nothing will grow because of the shade of the trees. If a dozen gardeners were called in for a consultation on the subject, there would probably be eleven in favour of cutting the trees down, and not more than one with courage enough to defend them. If we had to do with such a palaver, we should side with the minority, not only because there is a peculiar pleasure that has the look of virtue in it, but because we love trees, never yet saw too many of them in any garden, and, what is perhaps of much more importance to the suburban amateur, because the ground under trees may be as richly clothed as in the open.

Before there can be much success in planting under large trees, the soil must undergo some improvement. If the shrubby lilacs and snowberries are cleared out, and the surface dug over, it will generally be found that the soil is as dry as dust, and full of the surface fibres of the trees. These fibres need not be considered as of much consequence, and the ground cannot be dug over without destroying them to some extent. But there must be no wanton destruction, and a four-tined fork will be the best tool for the work of breaking up the surface, because that will do less mischief among the surface roots. There must first be a heavy dressing of half-rotten dung, which must be dug in one spade deep; to go deeper will do too much harm to the roots of the trees. There ought also to be wheeled on to the piece a few heaps of silky yellow loam, with plenty of turf in it, or a mixture of common garden loam and leaf-mould, equal parts, well incorporated. This loam or loamy mixture is to be used for planting the conifers, which ought not to be planted in soil containing recently added manure; and the object of laying it in heaps is to have it ready for filling in wherever trees of the

coniferous order are introduced, as in planting these the soil taken out of the holes may be spread over the surface, and the loam used instead to close in their roots.

There are two important points to bear in mind in improving the plantations under trees. First, to place the most beautiful shrubs next the walk, and to give richness to the foreground, using the less attractive to fill in the rear, and make a dense background of dark foliage. When the planting has been completed, the great secret of success will be to give abundance of water. As soon as the trees overhead are in full leaf, all ordinary showers will be prevented reaching the ground below. It is at that period the shrubs usually begin to decline, and if not assisted some are sure to perish. Once or twice a week, according to the state of the weather, the roots of the newly-planted shrubs should be liberally watered, those at the back first, and so on to the front; to every one should be given at least a pailful, and the larger specimens will require two or three pailfuls each. When this part of the watering is done, there should be thrown over them a smart shower from the garden engine, to wet the foliage, and if the leaves are at all sooty, wash them clean by throwing the water on with some force. Watering in this fashion from the beginning of May till the middle of August will have a surprising effect; the shrubs will by that time be clothed with ample and glossy foliage, and there need be no more artificial watering till May comes round again; but it ought to be repeated every year for ever, if it is desired to have luxuriant underwood. It is drought, and not shade, that kills vegetation under trees.

In autumn there should be a mulch of half-rotten dung, about three inches thick, laid down over the whole piece; and if the littery part of this is unsightly, throw a little soil over to hide it, or, better still, use short dung nearly rotten; this does not offend the eye, and is nearly as good as that a few degrees less decomposed. The large trees so completely exhaust the soil, that there must be liberal manuring, and the addition of fresh loam and leaf-mould for the conifers, or it is impossible there should ever be much success in forming handsome shrubberies under trees.

We will now indicate the species and varieties to be depended upon for luxuriant growth under the shade of trees, appending to each a few words of description as a guide to amateurs, who might not otherwise know which to select to suit their purposes.

PRIVETS.—We place these first, because they are the cheapest and most generally useful for planting under trees, and are very attractive when they attain to a good size and flower freely. *Ligustrum vulgare*, the common privet, makes such long rods when in a young state that it requires to be boldly pruned back every spring to promote a bushy habit. There are white and yellow berried varieties of the common privet well worth growing. It must be borne in mind, however, that when grown in deep shadow they do not usually fruit freely. Of the choicer kinds of privet we can strongly recommend *Ligustrum lucidum sempervirens*, a most beautiful shrub with glossy leaves, and abundance of flowers in June. This and *L. Japonicum* bear shade well; they require a sheltered position, and

may be left to grow almost as they please. The last named is exquisitely beautiful, but unfortunately rather tender; the winter of 1860 destroyed all our specimens, which were remarkably handsome, and flowered most profusely. The new *L. Coriaceum* is a fine, dark, solemn species, like a holly.

PHILLYREAS.—These slow-growing, hardy, and handsome trees bear with shade, smoke, and poor soil as well as any that have place in our gardens. They are the best of all subjects to grow as dwarf standards on lawns; and as shade agrees with them, they are well adapted to take the place of Portugal Laurel, Bay, and other evergreens used for promenade work where the aspect is not favourable to the growth of the *Cerasus* tribe. The best for general purposes are *Phillyrea angustifolia*, *P. latifolia*, *P. ligustrifolia*, or privet-leaved, *P. pendula*, with graceful drooping habit, and *P. buxifolia*, or box-leaved. The one first named is most commonly used, and forms dense masses of rich dark green verdure, requiring no pruning at all.

BERBERRIES.—Here is a genus of shrubs possessing the highest qualifications for purposes of ornament; and all the grander evergreen species do better under trees than in the open; in fact, they require to be constantly in the shade. The soil in which these thrive best is a deep, rich, moist, sandy loam, and to have abundance of water overhead and at the roots. Among the species the noblest of all is *Berberis Japonica*, which for magnificence of foliage has no equal among hardy shrubs. It naturally grows in the form of a dense bush, with large pinnated leaves of hard texture and a lively green hue. Our specimens of it are now covered with spikes of flower-buds, which will open at the first break of spring weather, and soon be succeeded by bunches of grape-like berries covered with a lovely bloom. Two other noble large-leaved species which thrive under trees are *B. Bealii* and *B. intermedia*. For warm sheltered gardens, *B. Nepalensis* is most beautiful, and *B. Fortunei* is well worth having, but both these are rather tender. One of the liveliest of flowering shrubs is *B. Darwinii*, which blooms abundantly, and of which we had spikes of bloom sent us on Christmas-day from a Devonshire correspondent. One of the cheapest for common purposes, and a really beautiful species, though not equal to those already named, is *B. aquifolium*, well adapted to plant in quantity in town gardens, and to form game covers or belts for screening off the compost yard or kitchen garden. We could name others, but these are the best for planting under trees.

HOLLIES of all kinds thrive to perfection under trees. They require a dry sandy soil, and in damp undrained clays should be planted on prepared mounds above the level. The common holly, *Ilex aquifolium*, forms rich masses of dark green foliage, and the variegated kinds are among the most elegant of all shrubs for fore-courts, terraces, and choice positions, as they are lively in the winter, and once properly planted take care of themselves, and rarely require any sort of pruning. *I. balearica* is a smooth-leaved holly of free growth; *I. latifolia* is a noble tree with large leathery leaves, but rather tender; *I. Sheppardi* has broad-toothed leaves of an intensely

rich shade of bluish-green, and does not bear the shade so well as the commoner kinds, so should be placed on the outer skirts of the plantation, where there is a moderate exposure to light and rain. The *Dahoon* holly is quite at home in the shade, and makes a noble specimen.

Box.—All the species and varieties of *Buxus* do well in the shade, and are always beautiful; the variegated kinds are lovely shrubs for giving relief to broad masses of dark foliage, and may be used where scarcely anything else would grow. Most of the kinds in cultivation are varieties of *Buxus sempervirens*. The elegant large-leaved box, *B. balearicus*, forms a round-headed bush, and is well adapted for formal planting on account of its symmetry and fine character, but it is rather tender. The winter of 1860 destroyed numbers of it.

GRISLINIA.—There are two or three species of this known, but only one needs mention here, *Grislinia littoralis*, a fast-growing shrub, with somewhat the habit of a *Euonymus*, but vastly more beautiful; the leaves of a bright rich green, and as glossy as if varnished. It likes a rich soil, but abhors damp, and is so far tender that it ought never to be planted in an exposed situation.

EUONYMUS.—The common coral-berried shrub, *Euonymus Europæus*, will grow in the poorest soil and the darkest position that can be found for it, and still grow well and bear berries abundantly. Unfortunately, it is deciduous, and we are chiefly thinking of evergreens now. *E. Japonica*, the well-known evergreen which supersedes the holly in London gardens, is a first-rate subject to plant in the shade. Small cuttings put in in July, and kept bushy by nipping out the points of the shoots, will after a year's growth make a good substitute for box edging, where it is found difficult to keep box in good order. The silver and gold varieties do not prosper so well under trees as the common kind, but of the two the silver-striped soonest makes a good-sized bush; the golden varieties are charming subjects for pot culture.

CONIFERS.—There are very few of these that do any good under the shade of trees. The species of *Abies*, *Pinus*, *Picea*, etc., etc., soon perish, no matter what care be bestowed upon them, if they are planted in such positions as we are now providing for. But we can recommend a few, and those with confidence. In fact, the first we have to name of this section is the best plant known to grow under the shade of trees, and it never attains to such beauty elsewhere as in deep shadow, and it will take care of itself if planted in fresh loam or clay. This most valuable of the conifers for this purpose is *Taxus adpressa*, a dwarf-growing yew which grows in the form of a large shallow cup, or with a tabular head regularly spread out, and densely clothed with small leaves of the deepest shade of green. Another good yew for the purpose is *Taxus Canadense*, plants of which we had for a period of six years in a position which would almost have starved privets, and they have formed graceful half-weeping trees, with foliage not quite so dark as is usual with yews. In a similar position, the common yew, *T. baccata*, has several times perished, and the Irish yew has done no good. Two more

conifers for the purpose are *Juniperus sabinoides* and *J. tamariscifolia*. The elegant *J. Virginiana*, *Hispanica*, etc., so well adapted for formal planting, are of no use under trees; they become in a few years mere ghosts of their former selves. Of Arbor vitas we can only recommend one, and that is *Thuia plicata*, and this will not thrive in the most shady positions. It may startle growers of conifers to learn that the noble *Cedrus Deodara* is almost as well adapted to plant in the shade as any tree we possess. Of course it would in time fight for pre-eminence with the trees that shadowed its infancy, but for ten or fifteen years would keep within bounds, and form a graceful ornament in a shaded plantation. We must confess that we have been surprised at the success which has attended the trial of this grandest of forest trees as a shrub for confined and shaded positions.

AMERICANS.—For the front of a plantation shaded by large trees, a selection of *Rhododendrons* and *Kalmias* will constitute a grand and interesting feature. A moderate amount of shade suits them, and in that position they must have a suitable soil, and if sheltered from rains, abundance of artificial watering during their growing season. If planted to form a belt, the soil should be taken out in a trench four feet wide and two feet deep. This trench should be filled with good turfy bog, or a mixture of half peat and half silky loam, or half peat and half leaf-mould, with no animal manure. The showiest kinds for the purpose are *hybrid Rhododendrons* and *Kalmia latifolia*. In the front of such a belt might be planted *Skimmia Japonica*, *Gaultheria Shallon*, *Pernettyas*, *Ledums*, *Andromedas*, *Rhododendron Tauricum* and *Ciliatum*, and a few other choice small-growing peat plants.

SURFACING PLANTS.—The common *English Ivy* and common *Periwinkle* are the two best plants for surfacing mounds and the soil between shrubs under trees. If walls, old stumps, or trellises require to be clothed, Irish Ivy (*Hedera helix Hibernica*) and the large-leaved Ivy (*H. Regneriana*) have a fine effect. S. H.

MANAGEMENT OF GOLD FISH.



HAVING received a great many letters on the subject of gold fish, it has occurred to me that such favourites of the home ought to be treated of in these pages for the benefit of many who find it difficult to preserve their pets for any length of time.

The first difficulty occurs at starting; for, be it known, that gold fish are raised for the market in much the same way as winter cucumbers—that is to say, they are bred in heat—for the gold carp rejoices in a bath of from 80 to near 100 degrees of Fahrenheit; and the fish so produced are known in the market as “hot-water fish.” These hot-water fish are very often queer things; some of them have broken backs, some double tails, many are without the

dorsal-fin, and some are "awful about the head;" in fact, hot-water fish are of all shapes and colours—some very lovely, others much deformed. As might be expected, when fish so bred are transferred to water at the ordinary temperature of the season, and left to brave it out, they succumb to the coldness of the climate, and show their silver bellies to the sky. If, therefore, gold fish are to be kept in water not artificially heated, what are known as "cold fish" must be secured; at all events, the others should be bought only in summer time, so that they may suffer a slighter shock, and get used to the climate by degrees, before winter.

Another matter of importance is the water itself. If I had not received so many letters on the subject, I should never have dreamt of folks attempting to keep fish in *rain-water*! It is really absurd; one might as well expect a poor mouse to live its time out under the exhausted receiver of an air-pump. Rain-water is deficient in the first elements of fish life, namely, oxygen—or, rather, its free oxygen is not in a proper form to afford them support; and it also wants earthy matter, such as is always plentiful in river-water. But suppose you have no river-water, then you must turn the rain-water into river-water, and the process is very simple. Fix a filter over a large pan, into the pan throw a handful of old mortar and a spadeful of garden mould that is free from any decayed matter or manure; filter the rain-water on to the earthy mixture, and let it stand a few days, then filter it again into the vessel in which the fish are to be kept, and it will be nearly as good as the purest of river-water for them. To prepare hard spring-water, it is generally only necessary to expose it in an open vessel for a few days, when the salts that cause it to be "hard" will be deposited, the water warmed, and rendered suitable.

Of course we now come to the question about changing the water. If much trouble is necessary to prepare the water for the fishes, who will care to take such trouble daily? Ay! there's the rub. If you want your fishes to live, *you must not change the water at all*. Nature does not change the water, but she plants a number of vegetables in her lakes and streams; and if you wish your golden pets to be healthy and happy, you must do the same. No matter what kind of vessel you may choose to keep gold fish in, and no matter what shells, or blocks of granite, or rock crystal you may use for ornament, the beauty of the scene will be enhanced by the immersion in the lymph of a few appropriate plants. Get a few stems of the common *Anacharis*, or the water starwort (Chard), *Vallisneria*, *Nitella*, or the noble water soldier—in fact, any of the more elegant aquatics—and fix them at the bottom by means of a pebble attached to their lower stems by means of a strip of bast, and they will soon take root if a few clean pebbles are thrown in, and in a few weeks' time will sprout in all directions, and form a rich green forest under water, giving shade to the fishes and supplying them with oxygen, so that the water never need be changed. Should the glass get coated with a green slime, it will be easy to remove it by means of a sponge; and if the vessel is emptied for alterations, use the same water, unless it is really discoloured.

Changing the water kills more gold fish than any other cause, the hardiest fishes cannot stand it; and as to purity, it needs only a little patience at first, and the water will keep pure for years.

The next point is as to feeding. There are some folks who never feed gold fish, "they have been told not to." Remember how the Frenchman's horse broke down, though fed with diminishing rations. No animal can live long if not fed at all. "But they eat the insects in the water!" Eat fiddlesticks! Just consider, here are half-a-dozen fishes, weighing each a quarter of a pound. Where is the food to support them in that bright liquid? In ponds they find a thousand things to eat, which few ladies would like to see in their fish globes; but in such an artificial state they must be fed, or perish. Give them the crumb of brown bread, now and then, gentles, flies, or a little millet seed or boiled rice. It is important to give them only as much as they are likely to consume in the course of a few hours, because if food lies about long, it taints the water and spoils its brilliancy. A little observation will soon afford a rule for the quantity, in accordance with the number and size of the fishes. If water snails are kept, the young of the snails will be greedily eaten by the fishes, and afford them a very suitable food—carp of all kinds being very partial to young snails; the snails are useful, too, in keeping down all obnoxious growths on the inner side of the glass. For ornamental purposes the best snails are *Planorbis corneus*, *nitidus*, and *contortis*, and *Paludina vivipara*. Any of the species of fresh water mussels are ornamental, and highly useful in keeping the water pure.

Lastly, do not expose gold fish either to intense sun heat in summer, or frost in winter. They are really tender, but must not be coddled. In their native pools they can escape from the glaring sun to some green, shadowy depth, but in globes there is no escape; and they get blinded, and boiled pretty often, by being exposed in globes that act as lenses, in windows open to the sun for hours together in high summer.

S. H.

TREE MURDER.



WE have been occupied many years in advising the public on propagating, planting, pruning, preserving, and improving trees for use and ornament, and by way of a change we intend now to offer a few observations on the art of killing trees.

We advise, then, that when trees are purchased, that it should be as late as possible in the planting season. By this method the purchaser will make pretty sure of obtaining the weakest and most ugly of the stock left in the nursery, after all the foolish people who like to keep their trees have had their pick. When the trees arrive home, lay them anywhere, and be sure their roots are not covered. The more the air, frost, and sunshine act on their roots the better. When they are planted, take care to have the ground in a wet, pasty condition; do not prune them; let all the bruised and jagged parts

of the roots remain; plant them very deep, do not tread them firm, and take care not to stake them.

They will certainly begin to grow rather late in the spring, and endeavour to overcome the various impediments to their well-doing which have been imposed upon them by the first conditions. This lengthens out the process of killing, and increases the interest of the task. Dig about their roots frequently all the summer. If they are in the kitchen garden, crop as near to them as possible. You may as well have plenty of cabbages and cauliflowers off the same ground as the apple and pear trees occupy, and so let there be no scruples about using the spade where their roots run, and even quite close to their stems, as the more you destroy their surface fibres the better. It will not kill them quickly, but only cause them to send down tap roots into the cold subsoil, and this will favour disease, which increases the fun. If they are in the border next the grassplot, you have a fine opportunity to practise a little torture. Grow climbers of some sort at the root of every tree—sweet-peas will do very well, or honeysuckle, convolvulus, clematis may be used; and to train them up the stems use wall nails, and nail up the trailing plants with shreds, just as if they were growing on a wall. This will make plenty of wounds in the bark, and cause canker nicely. Then, if any of your rifle-shooting friends want practice, let them aim at the stems of the trees, and see how many bullets they can plant in the wood; and if you want to try one of Saynor's knives at any time, scoop out pieces of wood from the stems. If a branch grows where you do not want it, snap it off; if there is any fruit produced, knock it off with a heavy stick—this will bruise the fruit and the trees at the same time, and serve as healthy exercise.

One very effectual way of killing is largely practised in suburban gardens. It is slow and sure, and so pays well, because it affords a lasting amusement. It consists in periodically raising the level of the soil about the trees; say, putting on six inches of loam this year to raise the level of a bed or border where trees are planted. Next year, another six inches of old mortar, or sand, or coal-ashes. Perhaps the next year a high bank for ferns, and so on, to remove the roots of the trees farther and farther from the atmosphere and sunshine. This causes gouty swellings in the branches, then canker, then barrenness. By-and-by some of the branches die, the stem dies on one side, more branches perish, and the head of the tree is prettily sprinkled with dead spray and feeble shoots that do not grow at all. Now ring it near the bottom, and make the ring complete all round, and at least four inches wide. This will hasten the death of the tree, and you may have the pleasure the next year of cutting it down, and obtaining a cartload of firewood as a reward for your perseverance.

Allow young trees to be used on washing days to tie clothes-lines to—such a service is worth having, as it tends to bruise the bark and draw the tree aside out of the perpendicular, which is a nice strain on its roots and very advantageous. Above all things, when transplanting make short work of it. Just open the soil round the tree, and chop at its roots freely, and then tear it out of the ground.

NEW ROSES OF 1866-7.



THE roses of this year are not equal, on the whole, to last season's, yet there are some very good amongst them, and but few positively bad. Charles Verdier is an immense advance; Madeline Nonin and Monsieur Noman are fresh in colour and promising; Antoine Ducher furnishes us with a really good rose in the way of William Jesse. Francois Treve is a rich brownish dark, original in colour; Annie Wood and Horace Vernet are good additions to the crimson; Mrs. George Paul, Paul Verdier, Souvenir de M. Boll, and Thorin, to the different shades of rose colour. Monsieur Woolfield is exceptionally good, a seedling, doubtless, from Victor Verdier. Of Duke of Edinburgh, a seedling named and selected here, we can report most favourably; it is the brightest colour yet attained. All of these can be recommended.

In the second section of hybrid perpetuals will be found some of our most deservedly popular roses. We cannot dispense with our old established favourites, Baronne Prevost, Anna Alexieff, Eugene Appert, and other useful roses, first in and last out of flower. They make splendid free-blooming standards and bedding roses; and the vigorous varieties amongst them the best of perpetual climbers. One defect alone excludes them from the first section: they are not florists' flowers—they lack the form necessary in the present day for exhibition roses.

The whole of the hybrid perpetuals thrive best in a rich soil, and require close pruning, regulated by the rate of growth. The strong growers form excellent autumn-flowering climbers or for pillars; when so used they need but little pruning, leaving the shoots of a good length.—*Paul and Son, Cheshunt Nurseries.*

LUMINOSITY OF THE FRAXINELLA.

BY DR. HAHN.



WHEN the daughter of Linnæus one evening approached the flowers of *Dictamnus albus* with a light, a little flame was kindled, without in any way injuring them. The experiment was afterwards frequently repeated, but it never succeeded; and whilst some scientific men regarded the whole as a faulty observation, or simply a delusion, others endeavoured to explain it by various hypotheses. One of them especially, which tried to account for the phenomenon by assuming that the plant developed hydrogen, found much favour. At present, when this hypothesis has become untenable, the inflammability of the plant is mentioned more as a *curiosum*, and accounted for by the presence of etheric oil in the flowers. Being in the habit of visiting a garden in which strong healthy plants of *Dictamnus albus* were cultivated, I often repeated the experiment, but always without success, and I already began to doubt the correctness of the observation made by the daughter of Linnæus, when, during the dry and hot summer of 1857, I repeated the experiment once more, fancying that the warm weather might possibly have exercised a more than ordinary effect upon the plant. I held a lighted match close to an open flower, but again without result; in bringing, however, the match close to some other blossoms, it approached a nearly faded one, and suddenly was seen a reddish, crackling, strongly shooting flame, which left a powerful aromatic smell, and did not injure the peduncle. Since then I have repeated the experiment during several seasons, and even during wet, cold summers it has always succeeded, thus clearly proving that it is not influenced by the state of the weather. In doing so I observed the following results, which fully explain the phenomenon. On the pedicels and peduncles are a number of minute reddish-brown glands, secreting etheric oil. These glands are but little developed when the flowers begin to open, and they are fully grown shortly after the blossoms begin to fade, shrivelling up when the fruit begins to form. For this reason the experiment can succeed only at that limited period when the flowers are fading. Best adapted for the purpose are those panicles which have done flowering at the base, and still have a few blossoms at the top. The same panicle cannot be lighted twice. The rachis is uninjured by the experiment, being too green to take fire, and because the flame runs along almost as quick as lightning, becoming extinguished at the top, and diffusing a powerful incense-like smell.

RAPID CULTURE OF CYCLAMEN PERSICUM.



O raise a stock of full-sized bulbs in six months is very easy for those who have convenience to do it. Prepare a number of shallow boxes, three inches deep, with a few drainage holes if the boxes are new; no drainage holes if old and slightly cracked boxes are used. Seed-pans will do, but they are heavy to lift about, and being round, take up more room than boxes. A convenient size for the boxes is sixteen inches square. They can be packed close together, and an immense number of plants can be accommodated in a small space. Over the drainage holes place hollow crocks; lay down half an inch of peat lumps, tough and fibry. Fill up to the brim with a mixture of sand, leaf-mould, and fibry peat, or very turfy yellow loam, equal parts. In January sow the seeds singly, three inches apart every way. Place the boxes on a tank or bark bed, in a moist temperature of 60°. As soon as the seedlings show, look over the boxes, and wherever a seed has missed insert another. Keep them growing steadily till March; then increase the heat to 70°, with plenty of atmospheric moisture and regular waterings. By the end of May they will have formed large sound thrifty bulbs. Remove them from the bed and place them under the stages of the house, or if there is room to spare on a table in the greenhouse, whence, after a fortnight, they may be removed to a frame or pit. Dry them off gradually and ripen, and in six months from the date of sowing they will be fine bulbs to flower at the next potting.

HOW TO USE THE BAROMETER.

As a help to those who are not yet versed in the science of weather, we append a few short rules that may serve as guides, however imperfect, until they are more advanced in this interesting and useful study.

A RISING BAROMETER.

A "rapid" rise indicates unsettled weather.

A "gradual" rise indicates settled weather.

A "rise" with dry air and cold increasing in summer indicates wind from northward; and if rain has fallen, better weather is to be expected.

A "rise" with moist air and a low temperature indicates wind and rain from northward,

A "rise" with southerly wind indicates fine weather.

A STEADY BAROMETER.

With dry air and a seasonable temperature, indicates a continuance of very fine weather.

A FALLING BAROMETER.

A "rapid" fall indicates stormy weather.

A "rapid" fall with westerly wind indicates stormy weather from northward.

A "fall" with a northerly wind indicates storm, with rain and hail in summer, and snow in winter.

A "fall" with increased moisture in the air and the heat increasing indicates wind and rain from southward.

A "fall" with dry air and cold increasing in winter indicates snow.

A "fall" after very calm and warm weather indicates rain with squally weather.—NEGRETTI AND ZAMBRA.

VARIEGATED LEAVED PLANTS.—*C. C. Hudson*.—Mr. Lowe's work on "Beautiful Leaved Plants" may be obtained of Messrs. Groombridge and Sons. Messrs. Bell and Daldy have commenced the publication of a new illustrated work on the subject, the description in which will be written by Mr. Hibberd. It will be published in monthly parts at 1s. each.

HOW TO USE THE THERMOMETER.



WITH a view of preventing any erroneous readings, I wish to give your readers a few hints, and to enable them to correct their thermometers when out of order. I refer especially to Rutherford's *minimum* thermometer. Many persons have put their thermometers out of order by laying them down flat, or by allowing the top end to be lower than the bulb. The fluid has become separated, and an air bubble has crept into the fluid, which in cold weather has receded into the bulb, causing the thermometer to read higher than it should do. Another source of error is when the indicating fluid has, by reason of its having been exposed to the rays of the sun in summer, become condensed in the upper part of the tube, mostly under the brass loop; when this is the case the thermometer will indicate lower. I have seen as much as 10° of fluid thus condensed in a colourless state, which is not easily detected. The following simple rules will set in perfect order any instrument so deranged.

Take the upper end of the thermometer firmly in the right hand, and swing it violently (bulb downwards) at arm's length; the chances are that with half-a-dozen such oscillations the instrument is put in perfect order. If the contrary be the case, take the bulb end in your right hand, and gently strike the top part of the thermometer on the palm of your left; continue this, holding the thermometer upright, and all the bubbles will disappear.

The great risk in carriage in sending an instrument to be adjusted, and the simplicity with which the operation is performed, induce me to ask your insertion of the foregoing. I append my name, for, as I am supposed to know something about thermometers, my suggestions may be acted upon by your readers.—H. NEGRETTI.

PROPAGATION OF *CENTAUREA RAGUSINA*, *CANDIDISSIMA*, *GYMNOCARPA*, ETC.—These are considered very difficult to propagate, but like many other subjects that are reputed difficulties the propagation is a very simple matter when you know *how to do it*. As the Centaureas are the grandest of all the silvery-leaved bedders we possess, and among the most aristocratic plants known, a paragraph on their propagation will probably be acceptable both to private growers and to many in the trade. One difficulty is to get shoots long enough for insertion in the soil of the cutting pans. This difficulty is to be got over by taking the plants from the greenhouse to the stove in February ten days before making the cuttings. The heat will lengthen the shoots, and as soon as they are long enough to cut take them. The soil for the cutting pans should be peat *without the fibre* one half, silver-sand one half; mix this thoroughly, and then put it in an oven, and *let it bake, but not burn*, till completely desiccated. Dibble in the cuttings and put bell-glasses over; keep on bottom heat; give no water for three weeks, then wet them moderately, and they will throw out shoots immediately, and a week after may be potted in thimbles or thumbs.

LANTANAS.—These are so commonly grown as annuals, that few cultivators are aware of the stately dimensions to which they attain when treated as evergreen shrubs, and grown on from year to year. Lantanas are usually regarded as stove plants; yet most gardeners can grow them well in a warm greenhouse, and during the height of summer they may be safely planted in the open ground, or used as pot plants for the decoration of balconies, etc. The soil required is a light and rather peaty mixture; the exact composition is of no consequence; half peat and half loam will do, so will a mixture of nice friable yellow loam, with a third part or even half part of leaf-mould. To be well drained is essential; and while growing they require abundance of water. The principal difficulty appears to be the keeping of Lantanas during winter. What they require is a certain degree of warmth; if kept too cold, they become mildewed and miserable, and perhaps die at the collar; but if never in a temperature colder than 40°, and averaging not lower than 45°, will take no harm, and it matters not whether the situation be a sunny window or a shelf in a greenhouse, heated with hot-water pipes, for in truth Lantanas are very accommodating as window plants. The following are six beautiful varieties:—*Adolphe Heuss*, gold yellow; *Crocea superba*, orange and red, and a capital bedder; *Delicatissima*, pinky-lilac, a good bedder; *Fillioni*, rose-violet, yellow centre; *Fulgens mutabilis*, yellow, changing to orange-tinted crimson; *Monsieur Rendatler*, shaded rose and salmon; *Victoria*, pure white; *Xanthina superba*, yellow and scarlet.

NEW PLANTS.



ANCHESIA NOBILIS (*L'Illust. Hort.*, t. 528).—We register this figure for the sake of the completeness of our record, but the plant has been already described.

PELARGONIUM SOUVENIR DE WILHELMA (*L'Illust. Hort.*, t. 529).—A large rough flower of very ungainly form, the top petals marked with a large rayed blotch of purple, the lower petals with small purplish spots on a rosy bluish ground. It is described as flowering freely at all seasons, and if adapted for forcing, will be useful, as, in spite of its poor form, it is a pleasing variety.

RHODODENDRON ORNATISSIMUM (*L'Illust. Hort.*, t. 530).—A fine garden hybrid, the flowers in large trusses expanding fully, the petals edged with lilac, top petals spotted orange brown, throat nearly white; a very beautiful variety for the American garden or for forcing.

DRACÆNA MOOREI, *syn.* **CALODRACON TERMINALIS var. MOOREI**; *syn.* **DRACÆNA TERMINALIS QUORUNDAM** (*L'Illust. Hort.*, t. 532).—Liliacæ. This is a variety of the well-known *Dracæna terminalis*. It is characterized by an upright habit, the leaf stems are of a brilliant purplish red colour, and the leaves a rich purplish bronze.

CAMELLIA VITTORIO EMMANUELLE II. (*L'Illust. Hort.*, t. 533).—A large flowering variety, the flowers have rather pointed petals, the prevailing colour is a soft blush, but every petal has a blotch of bright rosy pink at the base. A delicate, pleasing flower.

LILIUM LEICHTLINI, *Max Leichtlin's Lily* (*Bot. Mag.*, t. 5673).—Liliacæ. A beautiful lily, received by Messrs. Veitch and Sons from Japan, along with bulbs of *L. auratum*. The flower resembles *tigrinum* in form, but differs in colour, and the plant differs in having a more graceful habit and scattered leaves. The stem rises two to three feet high, the leaves are alternate, linear lanceolate, and recurved, pale bright green. Flowers solitary in specimens hitherto flowered, four inches in diameter, pale golden yellow, spotted with small oblong patches of clear red purple or maroon-brown, anthers yellowish brown or purplish. An interesting and beautiful addition to a charming family.

CÆLOGYNE HUMILIS, *Dwarf Pleione* (*Bot. Mag.*, t. 5674).—Orchidacæ. A pretty little plant, met with in Nepaul and Bhotan, at an elevation of seven to eight thousand feet. The pseudo-bulbs are bottle-shaped, the flowers occur singly, they are white, tinged with rose, the inner part of the lip being richly painted with crimson.

BEGONIA CLARKEI, *Major Trevor Clarke's Begonia* (*Bot. Mag.*, t. 5675).—Begoniacæ. This differs from the beautiful *B. Veitchii* in being a caulescent branched plant, with larger, deep rose-coloured flowers.

CYMBIDIUM HUTTONI, *Mr. Hutton's Cymbidium* (*Bot. Mag.*, t. 5676).—Orchidacæ. This differs greatly from the best known species of the genus to which it is referred. It is a native of Java, from whence it was obtained by Messrs. Veitch and Son. The pseudo-bulbs are elongate, the leaves in pairs, the flowers in a ten (or more) flowered raceme, the prevailing colours rich brown and olive green.

CALCEOLARIA PISACOMENSIS, *Orange Red Calceolaria* (*Bot. Mag.*, t. 5677).—Scrophulariacæ. This is one of the handsomest calceolarias that has been introduced for many years; too large, perhaps, to be considered at present as a bedding plant, it must nevertheless be regarded as a grand acquisition for the flower garden. The plant is tall and stout, the leaves one to two inches long, ovate-cordate, the cymes very numerous and many-flowered, the flowers somewhat papilionaceous in appearance, the colour rich orange, passing into orange red.

DENDROBIUM BENSONIÆ, *Mrs. Benson's Dendrobe* (*Bot. Mag.*, t. 5679).—Orchidacæ. A beautiful plant, most closely allied to *D. nodatum*. The flowers are two inches in diameter, snow white except the lip, which has broad, deep golden yellow disks; two purple spots near the base.

SACCOLABIUM HUTTONI, *Mr. Hutton's Saccolabium* (*Bot. Mag.*, t. 5681).—Orchidacæ. A very distinct and fine species, producing grand spikes of flowers of a rich rosy purple colour.

GARDEN GUIDE FOR JANUARY.

THIS is a dead time, and there is almost nothing to be done out of doors except on those rare occasions when the weather is genial and open, and the ground is neither frozen nor soddened. Then planting may go on, manure may be carried and spread, and peas and beans be sown. In plant-houses there is not much work to do, but what little there is should be done with care, for tender plants will not bear careless treatment with such impunity now as in the summer time. It will soon be time for the cultivator of bedding plants to start old stools of verbenas, petunias, centaureas, etc., into growth in a generous heat to furnish cuttings for this year's display, and a great many kinds of flower seeds may now be sown, and have the aid of a steady heat.

Kitchen Garden.—Early supplies of radishes, horn carrots, two bladed onions (for salads), and many other useful things, may be obtained on light rich borders raised above the general level, and sheltered with high walls from the north. It is worth the while of every cultivator of table delicacies to form such a border for the production of a few of those saladings and tender vegetables which are so highly prized in spring, and which, if purchased, are found to be costly. An abundance of manure, with sand, and, if possible, light turfy loam, should be used in the formation of such borders, and the roots of trees should not be permitted to ramify through them. All kinds of things may be sown together, such as horn carrots, radishes and onions, but we prefer to keep all ours separate. The sowing should be done when the ground is somewhat dry, and an abundance of light clean litter should be kept in readiness to cover the bed with in case of frost.

Flower Garden.—Bulbs, roses, and deciduous shrubs may still be planted when the ground is in a fit state, but it is not a good time to move evergreens; where florists' flowers are cultivated, frosty weather affords a good opportunity for carting in turf, manure, etc., and for turning heaps of compost. When the heaps are well frozen on the outside, have them broken open and turned to expose a fresh surface to the frost, and to give the robins and thrushes a chance of picking out the wire-worms and grubs.

Greenhouse and Conservatory.—Beware of cold and damp combined, as most injurious to tender plants. However delicately constituted, plants endure frost with less harm when tolerably dry than when damp. During long-continued frosts damp is sometimes too carefully avoided, and a house full of plants may become so dry as to be half spoiled; this, of course, is most likely to occur where fire-heat is used constantly. It is our constant practice when the fires are going briskly to have an occasional look round to see that the plants are not being dried up. All plants coming into flower must be kept near the glass.

For full particulars of the work of the season, we refer to past volumes of the *FLORAL WORLD*, and to the *GARDEN ORACLE* for 1868.

FROSTED PLANTS.—"Whatever is touched with frost keep dark and cool, and damage will be lessened, if not entirely obviated." The effect of frost on plants depends considerably on the state it finds them in. Soft-wooded greenhouse plants are killed *instantly* if they are in a moist atmosphere and growing temperature with full enjoyment of light; but if moderately dry, and well covered so as to be almost in total darkness, very many even of the tenderest will bear a few degrees with impunity. This advice may be of use now, for we may have a smart time of it yet, before the cowslips blossom. If frost gets into a house, and makes its mark on the minimum thermometer, draw down the blind, if you have one, at once, or cover the lights with tarpaulin, straw, or whatever may be at hand to exclude the light, and be particularly careful not to get up the heat in a hurry. To raise the temperature is, of course, essential, but it will be well to keep it at about 33° for a day at least, that thawing may take place slowly. A few degrees of frost met in this way will do much less harm than is generally inflicted where the terrified cultivator heaps on the fuel, in the mistaken notion that fire is the proper antidote to freezing. The same remark holds good as to fruit. The frost gets into part of the store of apples and pears, and some are frozen hard. If they are allowed to thaw slowly, and *in the dark*, they are not a whit the worse for the visitation. If thawed in full daylight, they would probably melt in the operation.

TO CORRESPONDENTS.

CAMPTOSORUS RHIZOPHYLLUS.—*M. F.*—This, pretty little fern is quite hardy, but we have never seen it do any good out of doors. Mrs. Hibberd grows it admirably, and multiplies it largely by runners, in the lantern fern case that was represented in the FLORAL WORLD for January, 1858. That fern case is beside us as we write this, and peeping in we see the fern you inquire about in beautiful health, in a half cocoa-nut shell suspended near the top of the lantern. It is in the same soil as is used for nearly all our ferns, namely, peat from Epping Forest, chopped up with about a fifth part of silver sand. It would, no doubt, grow in silky loam or leaf-mould as well as in peat. Anywhere under glass and kept cool we should expect it to attain higher perfection than out of doors; nevertheless it will stand our severest frosts when established.

R. W. W.—We have tried several times to read your long letter, with a view to make a reply, but really it is *too long*, and as we suppose our days to be numbered we give it up.

BERBERRIES.—*J. J.*—The *B. Hookerii* of English gardens closely resembles *B. Wallichiana*, and both of them are natives of Nepal. *B. myerophylla* is a fine species; we know not where it is to be obtained. Your specimen of *B. myerophylla* is most acceptable, and your queries on these subjects occasion us agreeable reflections and inquiries, therefore we trust we need not apologize for being rather slow to answer them. The fact is they are sometimes posers.

GRAFTING RHODODENDRONS.—*P. B.*—The routine practice in multiplying named varieties of rhododendrons is as follows. In the course of February and March small seedling Pontia stocks are potted in 48 or 54 sized pots, and taken into a warm close propagating house. There they are at once grafted by a very simple process. The operator sits at a bench, and is armed with a faultless small knife. He cuts off the head of the stock, leaving a stump of about two inches length in the pot. This he splits down about an inch, as if intending to make the stock represent the letter Y. He then cuts the end of the graft to the form of a long wedge, the graft itself being a twig with one tuft of leaves only. Opening the slit in the stock, he inserts the graft, and at once ties it round with soft bast, of which he has a quantity ready for use in lengths, wetted, and consisting of the best that can be got. As fast as they are tied they are taken to a bed over a tank, where the bottom-heat averages 60° to 70°, the atmosphere being extremely humid. They begin to grow immediately, and have tender care till the end of May, when they are set out of doors, and from that time forth they are saleable rhododendrons. Some people make much more fuss over it, using clay or wax over the ties, and adopting a less simple mode of cutting the graft; but there is no need for anything complicated or troublesome, for we have done thousands in the simple way described. It is important to do the work quickly and neatly, and the bottom-heat promotes immediate junction of the graft and stock.

GOLDEN FERN.—*Shropshire* will find under the head of *Gymnogrammas*, in the volume for 1867, a short treatise on the cultivation of golden and silvery ferns. At the moment of writing this we have not the index to refer to, and cannot say at what page of last year's volume the article is to be found. The fern is likely to die in the winter unless kept warm, but "*Shropshire*" may succeed in keeping it in her little conservatory, especially if care be taken never to wet the fronds, and to give but little water to the roots. A warm room lighted with gas would be a very bad place for it. The gloxinias are probably alive; let them remain in the mould, quite dry, in a rather warm place, till March or April, and then start them into growth on a hotbed, and as soon as they begin to grow, take them out and pot them afresh in new soil of a peaty nature, and grow them in a good heat with a moist atmosphere.

J. E., Kilburn.—We know nothing of it; the man has not been heard of for years.

Semper Augustus.—We have many letters signed "Constant Reader," "Old Subscriber," etc., etc., and a few with signatures that we cannot make out. You have simply missed the reply to your query because we gave the reply to "K" instead of "H;" but then you wrote your H in such a queer manner that the blind postman at the post-office could not have made anything but a K of it.

GREENHOUSE PLANTS DESTROYED BY GAS.—*R. H. S.*—We have fully considered your case, and our opinion is, that though the naphtha emanations from the newly-made coal tar flooring could not have been beneficial to the plants, no great harm would be done by it. But a gas flame sufficient to keep out a sharp frost in a house twelve feet by seven would, without a doubt, bring about the ruin you describe and deplore. Such things as geraniums will probably recover, for the fact is it is not easy to kill them, but the cinerarias may as well be thrown away at once, they will never be fit to look at. You will now be asking what to do. Well, we will endeavour to anticipate you. Contrive by some means to carry direct out of the house, by means of an iron pipe, the products of combustion of the gas flame, and if this can be accomplished (no doubt it can be easily) the gas heat will be as safe as any other heat. We have known hundreds of instances of plants being destroyed by the gaseous products of an exposed gas flame in *small houses*, but in great conservatories, with skilful ventilation and watchfulness, gas may be burnt with impunity.

C. B.—We really cannot reply privately. The **FLORAL WORLD** need not appear at all if we were to answer all our letters through the post. Besides, time is precious, and we detest letter writing.

MAGNOLIA GRANDIFLORA.—*T. B.*—We cannot explain the unsatisfactory behaviour of your magnolias; we can only suspect that they are in a soil not at all suitable. We know some hundreds of fine magnolias in various parts of the country, and in all kinds of soils, but the finest are in peat, or that soft friable hazel loam which we sometimes describe as "silky," and which has a silky feel between the fingers. Get some such soil, and give to each tree a cubic yard at least, and better, say a bed three feet deep, three feet wide, and five feet long. A spoonful of soil will not do for a magnolia. Now a very important matter requires consideration in the planting of magnolias, and it is that their roots should receive the least injury possible. An apple or pear tree may be hacked and butchered, and be planted with scarcely a fibre, and yet recover in the end, and do well; but a magnolia injured at the roots seldom or ever recovers. The roots are fleshy, and when bruised or cut a waste of sap occurs, and the tree receives a great shock. We have always preferred to plant small magnolias out of pots to the removal of large trees.

Dunton Vicarage.—*Centaurea ragusina* may be wintered in a frame with moderate care. The most important point is to give little water, and keep a dry atmosphere. We have known it live out of doors near London through the winter. In the **FLORAL WORLD** of 1867 is an article on the Tree Peony.

A. B. S.—We have never met with double flower pots, but something approximating thereto might be extemporized by fitting pots one within another, and would, no doubt, be useful for plants exposed to powerful sunshine.

AUCUBA HIMALAICA.—I observe in the **FLORAL WORLD**, in an article by you on the Aucubas, the following remark on *A. Himalaica* :—"This appears to be quite hardy, but has not, as far as we are aware, been fully tested as to its ability to undergo the rigours of this climate." Now, last June I placed in the open ground a young plant of *Himalaica*, which stood all the rigour of the winter without suffering in the least degree, and soon after the hard weather had departed, pushed forth its new leaves in a most vigorous manner. Close to this plant, *Garrya elliptica*, *Buddlea globosa*, *Ceanothus azureus*, and *Laurestinus* were cut to the ground, the two first destroyed root and branch. No doubt you will hear from other quarters, but I thought you would like to have as much evidence as possible as to the hardness of the plant.—*J. J., Wingham, Kent.*

LEICESTER VASE.—A letter from a friend to whom I applied says the Leicester Vase is very beautiful when well filled, but it is very brittle, the arms being of cast iron. My boy upset ours on the lawn, and broke eight of the arms. You mentioned this vase at my request in the last **FLORAL WORLD**, and I think it only fair to your readers to add the experience of my friend.—*A. B. S.* [We do not think the Leicester vase will suffer in popularity by the publication of the foregoing. The upsetting of such a thing is not to be counted upon as a probability, and perhaps even wrought iron could not endure such a shock; and surely we may take our risk with cast iron for the sake of cheapness.]

SOLDAT LABOUREUR PEAR.—In the list of pears given in the **FLORAL WORLD**, I think last month, no mention is made of "Soldat Laboureur," and as I believe it to be not commonly known in England, I think it worth while recommending it to

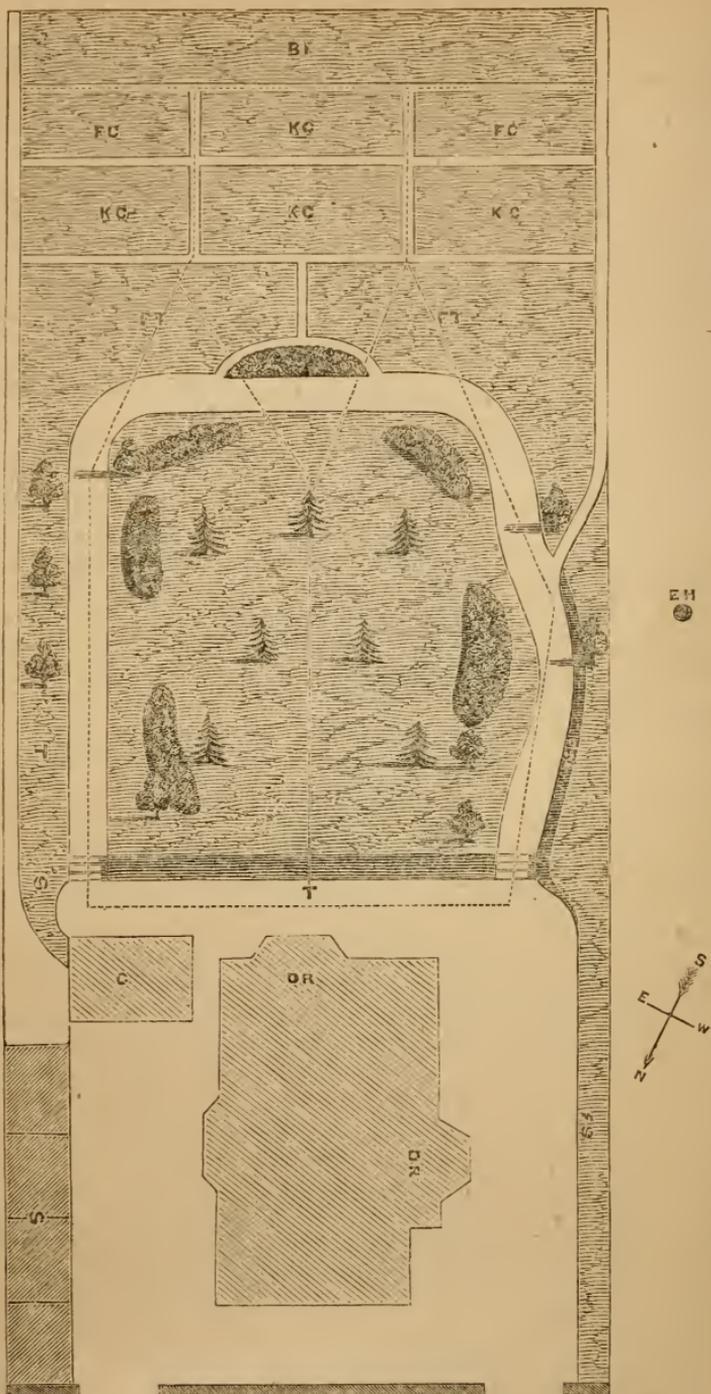
your notice. It is ripe about the same time as Marie Louise, and Louise Bonne, of Jersey, and after careful comparison with those pears, the "Soldat Laboureur" is pronounced by all my party for the last two years to be sweeter and better flavoured than either of the others. I got mine from Louis Van Houtte, of Ghent.—*Dunton.*

LAWN WEEDS.—We have a large lawn, which used to be beautifully fine and free from weeds, but now it is much disfigured by large and increasing patches of the weed commonly called "self-heal," *Prunella vulgaris*. Will you, or any of your correspondents, tell me of any way of getting rid of it? It is an old lawn; would sowing fresh grass-seed be of any use?—*M. F.* [The more we study lawns, the less we seem to know about them. In almost every batch of letters we receive we find one or two that contain queries on the preservation of grass turf in gardens. The experimental garden at Stoke Newington would at this moment furnish a subject for a query, for the experimental grass-plot about which we have written so much during the past twelve years has been left alone for three years past, and is now almost wholly a mass of daisies. Now, why is this? We have the glimmer of an idea to this effect, that the fine grasses and clovers that are required in a good lawn need a soil rich in phosphates and alkalis, and that when the soil is exhausted of these aliments, the grasses perish, and daisies and prunellas take their place. If this be the true theory, the remedy must be found in manuring, and we intend to cover our daisies with half an inch thickness of guano in April next, and recommend *M. F.* to do the same.]

FANCY ROSE-GROWING is making head, but many amateurs entertain varied notions about management. Advice from you would be welcome to your readers on a few points, namely, the proper time for pruning, how low the branches should be cut; in budding, how many buds to a briar; and any other hint you can give. A short notice of these points would oblige many as well as—*One of your Old Subscribers.* [Is "Old Subscriber" aware, that in the past hundred numbers of the **FLORAL WORLD** there have appeared about two hundred articles on Fancy Rose-Growing; scarcely a number has been published without one. We recommend "Old Subscriber" to become a young reader. But roses will have more attention yet, for the subject is not worn out.]

CRATEGUS PYRACANTHA.—*B. B.*—This plant is scarce, we know not why, since it may be as easily propagated as any plant known. The berries may be sown in the open ground, and will always grow, and if cuttings of the plant are put into a bed or a frame in August, and kept rather close, every one will root.

ASPLENIUM LANCEOLATUM.—*E. C. G.*—This elegant fern will not bear exposure on ordinary rock-work, and is not well adapted for pot culture. It is essentially a Wardian case fern, and is at home in a snug part of a cool fernery, or in a damp, shady, sheltered spot in a greenhouse. Wherever *Adiantum capillus veneris* thrives, this *Asplenium* will do well, and with just the same treatment as that elegant fern delights in. The best soil for it is one compounded of equal parts good peat of a fibrous nature, silver sand, and stone broken small; in the absence of freestone, which is the best, what is known as "hearthstone" will do very well, it being of a soft nature, retaining moisture, and favouring the ramification of the tender roots of these ferns.



SKELETON PLAN FOR A VILLA GARDEN (Scale 45 feet to 1 inch).

D. R., Drawing-room windows; T., Terrace; F. T., Fruit trees; K. G., Kitchen garden; B. F., Bush fruits. The dotted lines show the system of drain pipes.

THE FLORAL WORLD

AND

GARDEN GUIDE.

FEBRUARY, 1868.

SKELETON PLAN FOR A SMALL GARDEN.



IN accordance with a promise made in the November No. of the FLORAL WORLD, we have again dipped into our portfolio, and found a plan which will probably prove to be one of the most useful heretofore published. It is one we prepared not long since for a gentleman who had purchased a beautiful site for the erection of a villa residence, and which is now in process of being carried out. The position is quite rural, but the dimensions of the garden are far too restricted both for the size of the house and its charming surroundings. The garden terminates on a river bank; beyond the river there is a large lake, beyond the lake a broken sky line, consisting for the most part of distant plantations, but with a church and a few other buildings just visible amongst the trees on the horizon. At E. H., on the right-hand margin of the plan, is an ugly building of considerable size, an engine-house, which requires to be planted out, but the view right across to the south, and especially to the south-east, it is desirable to keep open. When receiving instructions as to the drawing of this plan, we were desired to provide for croquet, to give as much richness as possible to the foreground, to make plenty of room for fruit trees, and to apportion a plot for kitchen garden and frame ground. A few remarks on the character of the scheme will explain how far these wishes of the proprietor have been studied, and how far the plan itself may be useful to our readers.

The total length of the plot is 200 feet, the breadth 120 feet. The whole piece is divided pretty nearly into three equal parts, respectively devoted to the dwelling-house, the pleasure garden, and the kitchen garden. As the ground slopes downwards from the house, and the river and lake beyond are on a higher level than the kitchen garden, the last-named portion scarcely requires to be planted out, but rather it is desirable to keep the view open as much as possible, and merely to embellish the foreground in such a manner as to make it a proper accessory to the residence, and a suitable prelude to the scenes that lie beyond.

The printed plan is on a scale of 45 feet to 1 inch. The entrance from the road is on the right hand, which is bounded by a border of evergreen shrubs (F. S.). Between this border and the house the carriage drive has a width of 30 feet, which is the least that can be allowed to afford room to turn. On the other side of the house are the stables and domestic offices, entered by the gate on the left hand, where the stables are marked S. The house faces south-east to the garden, and the principal entrance to it from the carriage drive is on the south-west side. The garden front has a projecting window, where D. R. indicates the position of the principal drawing-room. Across the front is a broad terrace, T., which conducts us to the conservatory, C., on the left, and opens the way, by the main walks at either end, to the gardens. To take the fullest advantage of the fall of the ground, the lawn is laid at a lower level than the terrace, the two being connected by a glacis of grass, indicated by the dark shading next the line of the terrace at T. The main walks are approached from the terrace by steps.

The borders on either side of the lawn are to be furnished with mixtures of useful and ornamental trees and shrubs, but positions for a few large trees are marked, for the purpose of affording distinctiveness of character to the scene. There are five large trees in these borders, and four on the lawn, the rest of the special furniture consists of a few choice conifers and six clumps of evergreen shrubs, such as rhododendrons, etc. The right-hand border is skirted next the path with mixed hardy-flowering plants, marked F. B., but the outside border all round may be so appropriated. The compartments next adjoining the lower part of the lawn, marked F. T., are to be planted wholly with fruit trees, for which purpose trees of dwarf, bushy habit will be preferred, with a few standards intermixed. Further down are the compartments for the kitchen garden, marked K. G.; the compartment to the extreme left being intended for frames is marked F. G. The cross walk here is marked with a dotted line, and here is the course of an old drain, and the lowest level of the ground. A system of drains extending along the terrace, down the main walks, and through the centre of the lawn, serve to drain the whole garden into this principal drain; and as the bank beyond rises rather steeply to the brink of the river, it is assigned for bush fruits, and is marked accordingly B. F.

There is one, and only one, object which it is desirable to screen from view, or which should be only partially visible, and that is the engine-house, marked E. H., on the right hand. This has a somewhat imposing tower, but, considered as a whole, is decidedly unsightly. The planting to the right of the lawn is arranged to obliterate this from the scene as viewed from the principal windows near the situation of the letter T. On the nearest corner of the lawn are two large trees, and in the line that cuts between them on the right-hand border another large tree. If the tower of the engine-house appears through or above these, the view will be improved, but the great bulk of the edifice will certainly be hidden. It will be observed that, for the convenience of the gardener, there is a walk all round next the boundary. From the stables the walk proceeds direct to

the frame ground and the kitchen garden. On the other side, the rear walk is reached from the main walk by an opening near the engine-house; this affords the family an agreeable entrance to the fruit and kitchen garden plots, without coming into contact with heaps of manure, and the usual accompaniments of rough garden work. As for flower-beds, it is best as a rule to omit them from such a plan as this, but it will be seen that there is abundant space left for them at the upper end of the lawn, next the terrace, and in various places next the walk all round.

S. H.

VIOLETS IN FICTION AND IN FACT.

“Long as there are violets
They shall have a name in story.”



NO flower we have is so generally known and loved as the Violet. Not only is it sought after and admired by those living among clear streams and ever-verdant fields, but it is recognized and loved even by the young “Arabs” of our great metropolis, who have never breathed the pure air of heaven, or listened to the mournful sighing of the woods; yet they have often been arrested by the delicious perfume wafted from the basket of the flower-girl in front of the Royal Exchange, and have paused, and admired, and wondered. And see the effect they have upon the masses hurrying on thinking only of business. There is one rushing past as though his life depended on his haste; but the odour of the violets stops him suddenly, and hastily producing his penny, he fastens the little bunch in his button-hole, and feels for a time as though he was breathing the pure balmy air of spring, amid the smoke, and mud, and din.

The violet has claimed as large a share of the people's love as the rose itself, and has served to inspire many of the happiest lays of the poets. Moore has chosen for a subject the Feast of Roses, and Leigh Hunt made selection of a Feast of Violets. Of course such a lovely flower was attributed by the ancients to divine origin; thus mythology relates that when the master of the gods (Jupiter), in order to preserve his dear Io from the furious jealousy of her legitimate spouse, changed her into a heifer, he caused the prairies on which she lived to be carpeted with violets. According to another version, Jupiter, while travelling through *Ionie* (Asia Minor), was presented by a nymph with some violets, as being among the most precious things the country produced. The elder Rapin also attributes a celestial origin to the violet; according to him, Diana, in order to preserve one of her nymphs from the ardent pursuits of Apollo, turned her into a violet. But however interesting the mythology of the ancients may be, and although their beautiful allegories and delightful superstitions may add considerably to our

affection and reverence for many things, yet they fail altogether to augment our love for this little beauty; for who does not know that to attempt

“To gild refined gold, to paint the lily,
Or throw a perfume on the violet,”

is wasteful and ridiculous excess? No one who has ever possessed a spark of love for any of the works of nature, can look upon a violet without feeling their hearts overflow with love. Those who reside in the country can scarcely conceive the gush of tenderness with which their city brethren behold it. Many a time have we known the receipt of a few violets in a letter during the bleak month of March light up a whole dwelling with joy, while the care with which they have been preserved, as though they were the most precious jewels the earth could yield, told of the flood of pleasant recollections awakened in the hearts of those who saw them and inhaled their fragrance, and reminded them of places where—

“Daisies pied, and violets blue,
And lady-smocks all silver white,
And cuckoo buds of yellow hue,
Do paint the meadows with delight.”

Indeed, we have had such a vivid picture of the charms of country life presented to our mind's eye by such a welcome present, that afterwards the appearance of the bare, bleak walls, the forest of chimneys, and the narrow, interminable streets of the city, have caused an involuntary sigh for those days when without a care to trouble us we could wander about the fields, or rest upon

“A bank whereon the wild thyme blows,
Where oxslips and the nodding violet grows,
Quite over-canopied with luscious woodbine,
With sweet musk-roses, and with eglantine,”

and there give ourselves up to the delights of a book, unconscious of aught beside; or lie with our face turned up to the sky, picturing a brilliant future; or listen to the thousand delightful voices of the birds, and leaves, and trees, or

“The sweet sound
That breathes upon a bank of violets,
Stealing and giving odour.”

And there is no other flower which can awaken such a crowd of endearing recollections. Even the pearly snowdrop, with all its innocence and purity, fails to do it, for it reminds one too forcibly of the visage of stern old winter to permit its associations to be those of unalloyed pleasure; and however early in the season the snowdrop may be found in the garden, still somewhere in the wood, in a warm snug nook, sheltered by a high bank, or the gnarled trunks of some old trees, may be discovered the doubly-welcome violet.

“Ye violets that first appear,
By your pure purple mantles known,
Like the proud virgins of the year,
As if the spring were all your own.”—*Sir H. Wotton.*

It is impossible for any one to examine a violet attentively without being struck with the beneficence of the Creator, who has so admirably adapted its various parts for the fulfilment of the offices assigned to them. The fine white hairs reaching over the mouth, and protecting the stamens and pistils from the intrusion of insects which might interfere with their functions, the wonderful provision of nutriment for the stamens, and the admirable manner in which the pollen is distributed over the style for the purpose of fecundation, cannot fail to fill the beholder with reverent admiration, so that he can exclaim with the enthusiasm of Smart,

“Immense Creator! whose all-powerful hand
Framed universal being, and whose eye
Saw, like thyself, that all things formed were good;
Where shall the timorous bard thy praise begin,
Where end the purest sacrifice of song
And just thanksgiving?”

It is not to be wondered at, then, that the cultivation of violets is one of the most favourite amusements in connection with the garden. Many, it is true, find some difficulty in growing them to perfection, and complain that their plants get scraggy and woody, without producing much bloom. But this arises chiefly from neglect and carelessness, and mostly happens to those who imagine that because the violet grows wild, and prospers in that condition, that therefore it requires no care when placed in the garden. It does not by any means follow that a plant which grows wild in one place will flourish when transplanted to a garden, even though that garden may be near the spot from which it was taken; there being several weeds which absolutely refuse to grow in cultivated ground. The violet, then, requires ordinary care, and that its habits, likes, and dislikes, should be studied. In the first place, it is remarkably fond of a rich soil, and, in the second place, prefers a shady spot to a sunny one; and therefore, when preparing a bed for planting, these two points must be borne in mind. Choose a shady plot of ground, and have it dug deeply, and manured with a liberal hand; in fact, if it were prepared in the same way as a bed for cauliflowers, the violets would do well in it. If the soil is heavy, it would be advisable to mix some sharp sand from a gravel road with it; and if some charred rubbish is handy, some of that too, as the plants are very fond of it.

Having thus prepared the bed, the best time to plant is during the first week in May, putting the old plants in rows apart from the young ones, at about fifteen inches from each other, and the latter in rows at about twelve inches apart, there being one foot between each row. They should be planted firm; care should be taken to keep the ground clean and free from vermin, and during dry weather they require heavy soakings of water. It may be remarked, with regard to position, that the shade of trees, where the air can get to them all round, is very much preferable to the shade of walls, and much more beneficial to the health of the plants. During long periods of drought, they are subject to the attacks of red spider; but this may be checked in a great measure by dusting

sulphur, both on the under and upper surface of the leaves, at the same time giving them a thorough soaking with very weak liquid manure. If a profusion of bloom is required, it may be obtained by picking off the runners as fast as they appear; but with attention to the directions just given, good plants and a fair amount of blossom may be obtained without this trouble.

About the middle or the latter end of September the plants may be taken up and transferred to the shelter of a frame, in a compost consisting of two-thirds turfy loam, and one-third leaf-mould. Plant them in rows nine inches apart, six inches between each plant, and about two inches from the glass. Give a good soaking of water, and if the sun shines brightly, shade for about a week till the plants feel quite at home, when they may be freely exposed to the air. From this time they will require very little attention, except protection from severe frost, and the amateur will insure a profusion of bloom all the winter and early spring.

They may be propagated by dividing the root, or from runners, in the same manner as strawberries, the latter plan being the simplest and the best. After the flowering season is over, in the early part of May, sift about two inches of very light soil over the plants, which will make the runners speedily take root. Of course as much of the foliage as possible must be kept above the soil. After about six weeks' exposure to the weather, the old plants should be taken up, and a sufficient quantity of the most healthy runners selected for the blooming plants of the ensuing season, which should be at once planted in a bed, as recommended above.

J. C.

POTATOES ON HILLS.



OW that the planting season is coming round again, we have a few observations to offer to people who grow potatoes on the flat, and according to established usage. We have to remark, in the first place, that potatoes *are always planted too close*, and disease results as much through the crowding of the haulm as through any peculiarities of the atmosphere. We have long been so convinced of this, that in trying the merits of new varieties we have always thought it unfair to plant them on the flat in rows at from 20 to 30 inches apart, as a method of culture almost sure to induce disease. Even the moderate growers completely cover the ground with haulm by the middle of June when planted so close as this, yet in all the standard books on gardening, the distances between the rows are stated to be from "eighteen inches to two feet." Close planting of potatoes is a most unprofitable and a most unreasonable practice. If we happen to have heavy rain at the season when the tubers are ripening, the dense mass of haulm keeps the soil about them in a soddened state, by checking evaporation, and combining many of the conditions that favour the production of fungi. Yet it is at that moment, the potato is usually stricken with disease, when its growth

is completed, and for ripening the tubers a hot dry condition of the soil is most requisite. It is quite true that on some of the high-lying sandy loams in the south of England, and on some chalky and peaty soils, disease is rarely seen, and the only care requisite is to plant at good distances—two feet six between the rows to be the least distance allowable—and good crops may almost invariably be depended on. But when cold clays, wet loamy and gravelly soils, and enclosed plots of old garden mould, overhung perhaps by trees—when these are to be cropped with potatoes, they ought to be planted *on mounds or ridges*, so that the sun will act more directly on their roots through the sides of the mounds and ridges, and, in case of continuous rains, towards the end of the season there can be no lodgment of water to convert the farina of the tubers into a fungoid mass of putridity. Now, as almost everybody plants potatoes too close, we will lay down this rule for the guidance of all parties—whether they have hot or cold, wet or dry soils—that weak and moderate growers should be planted at least three feet apart from row to row, and one foot from set to set; the strong growers should be four feet apart and eighteen inches apart between the sets. People say to us when we verbally advise them to give potatoes more room, “How are we to do it on small plots of ground? It is all very well for those who can afford to plant four feet apart, but it can’t be done on small allotments.” Very well, don’t complain if the crop is diseased. Nature will not alter the constitution of the potato to suit the conveniences of people who hold small allotments, and if 100 bad rows are preferable to 70 good rows, why let those who prefer the bad have their choice. But there need not be an inch of land wasted. As the season advances, ground will be required to plant out from the seed-bed cabbage, broccoli, winter greens, etc., and there is the ground for the purpose between the rows of potatoes, and the plants will not be so far grown as to interfere with the circulation of air among the haulm until the haulm has done its work, and the crop is about to be harvested. We have on several occasions proposed a compromise between close and wide planting. We planted early sorts in rows eighteen inches asunder, and as soon as they were forward enough to use as new potatoes, we dug every alternate row, leaving half the crop to ripen, and making room for autumn and winter greens by the time they were sufficiently advanced to be finally planted. We invite those who are fond of experiments to plant a piece with a first-class late potato, such as the Fluke, for instance, and to proceed in this way. The ground is to be in good tilth from having been trenched and laid up rough, and there is to be no manure used in preparing it for planting. Level it down, and plant it all over with moderate-sized whole sets, *four feet apart every way*. Dig right and left between the sets narrow trenches, and with the stuff from these cover the sets six inches deep, so that each will form a hillock. Now manure these trenches, and when the time comes appropriate them for cabbage and broccoli: and to keep down weeds hoe the sides of the hillocks in dry weather, and draw all the crumbs upwards towards the collar of the plant. The depth of earth will prevent the haulm rising till all danger of spring frosts is

over, and then as it extends it may be allowed to hang down the sides of the hills as it pleases. As for the rest, nothing more need be said, except that on such an experimental piece there will probably be a far larger produce in the end, for if the bulk of the potatoes is less, they will more than compensate for that in quality. The desire to snatch from the ground more than it is capable of giving has been one of the main causes of potato disease.

REX.

WHAT BECOMES OF THE FLOWERS?



HERE *do* all the flowers *go to*? asked the little daughter of a florist of her father a short time since, and it is a question that has puzzled the heads of the uninitiated, who were far more advanced in years. Those who live in or near London, and have seen or heard the market carts go rumbling long after midnight—who have visited the flower market at Covent Garden in the early morning, and seen the wilderness of bright flowers and treasures of blooms brought forth from their boxes and baskets—who have sauntered through the Central Avenue at noon, and seen them made up into the most beautiful bouquets—who have seen the almost endless ranges of glass structures at the many large nurseries, and have noticed the countless number of small nurseries and florists that crop up in every suburban highway and byway they pass through—the question must surely sometimes present itself, “Where *do* they all go to?”

Let us, therefore, stand by our friend the florist in his pretty conservatory and seed-shop, and see if we can discover what becomes of them; and while he is talking to a visitor, we walk round the show-house to see what he has in bloom at Christmas. First we walk up to a group of yellow, and find it to consist of Coronillas, Genistas, Jasminums, etc.; these are flanked by two large Veronica Andersoni, covered with buds and blossoms; then Ericas of all sorts, the most showy of which are *hyemalis* and *gracilis*; then on a table near stand a dozen Poinsettias, surrounded with pots of Mignonette; on the floor is a row of Christmas Roses, and on the tables Epacris, large and small, of various sorts, from pure white to deep red, surrounded by Primulas, single and double, white and pink; while among the special earlies are Van Thols, single and double Cinerarias, and white Roman Hyacinths; and the whole are intermixed and surrounded by sweet and Otabeite oranges, Solanum capsicastrum, Linum tigrinum, and a host of other plants, either in bud, flower, or fruit, while ferns and foliage plants have a corner to themselves. But while we have been looking round the visitor has gone, and after him has gone a basket of Ericas *hyemalis* and *gracilis*, and Primulas pink and white. It was the Catholic priest, and the flowers are to decorate the altar, for the Bishop of the diocese will pay a visit on the morrow. But before we can moralize, a livery servant comes in, and orders a dozen bunches of flowers for dessert, and cut flowers for the epergne. “Flowers for dessert! why they

don't eat flowers, do they?" "Why, not exactly," says our friend, "but you will soon see what he means;" and straightway he turns to a row of glasses full of cut flowers, and after stripping off some sweet-scented geranium leaves for a background, he adds to them little bunches of perhaps six or seven flowers; no two bunches are alike—the prevailing colour of one is yellow, another scarlet, etc.; but they have one thing in common—each contains a sweet-scented flower—beliotrope, mignonette, violets, etc., so that they are real *nosegays*; and when made, a small oval piece of writing paper is placed at the back of each, and the whole are trimmed into shape with the scissors, and laid in a basket. How pretty they look! One of these is placed on the plate of each guest when dessert is served, and certainly will look as neat and sweet as anything on the table. But the day is getting on, and customers come thick and fast. "A bouquet for a little girl three years old. She will be dressed in blue and white, and the flowers must be a good contrast." Camellias for the hair—Mignonette for a sick friend—plants for the dinner-table, the sitting-room window, the drawing-room, the greenhouse—plants and flowers for presents to parents and friends, and to a "nearer one still and a dearer one yet than all others;" and ere evening sets in, a tall elderly lady comes, and her voice trembles as she asks for "a few white flowers to put into the coffin of a little child," and the hand of our friend trembles as he gathers them, for he also has had to mourn for "the little girls that died." And now 'tis evening, and what a clearance has been made! Flowers of one flock in the morning, where are ye now? The white Camellia is in the hair of the brunette, the red one blushes with the blonde; some have gladdened the invalid, while others will add grace and beauty to the ball room and the festive board. One group at least will be shortlived, for placed on the high altar, amid the heat and glare of twice fifty candles—alas, my pretty *Ericas*, not even the odour of sanctity will save your lives. But wherever they have gone they will perform their mission, for "the language of flowers" has no need to be taught in books: it is understood in all lands, by sage and savage, bond and free; and whether woven in the hair of the Indian girl, or grouped in the parterres of "the stately homes of England," or laid with loving hands on the bosom of the "not lost, but gone before," they proclaim by their inimitable loveliness, "The hand that made us is divine." Flowers stand side by side with the palm branch, and wherever they go are emblems of peace and love:—

"Ye are charmed, ye are charmed, and your fragrant sigh
Is health to the bosom on which ye die."

FLORA.

ORNAMENTAL GRASSES.



ANY enthusiastic collectors of garden curiosities attribute the general neglect of the grasses to the excessive devotion of amateur cultivators to plants which produce gaudy flowers—the geraniums, verbenas, and other “bedding plants” monopolizing, it is said, so much attention that subjects less attractive to the eye, though not less intrinsically beautiful and interesting, are utterly neglected in the selection of plants for decorative purposes. We must confess that we do not think the increased and increasing passion for the cultivation of plants which contribute to our gardens brilliant displays of colour during the summer season has anything at all to do with the supposed injustice done to the grasses, for concurrently with the passion for bedding plants, there has grown up also a passion for ferns, which, except in a few instances, exhibit but various tones of one colour, and are principally attractive because of the endless variety of their elegant forms. It is no doubt the truth that generally speaking grasses are not qualified to take the highest place in the scale of relative beauty among garden plants; but it is true also that they have at least a place, and deserve to be much more observed and cultivated than they are at present. To the amateur gardener, whose sole object in cultivating a garden is to derive from it as much physical and intellectual recreation as possible, the grasses offer themselves as admirably adapted for various decorative purposes, both while growing and subsequently when dried for the decoration of the table, or for the formation of vignettes. Some few of the family have indeed acquired a popularity second to none of the favourite plants of the present day; everywhere among the lovers of the picturesque the queenly Pampas grass (*Gynerium argenteum*) is esteemed as one of the grandest of garden decorations, and the universal distribution of this magnificent grass prepares the way at least for a more general appreciation of the beauties of other grasses; and we trust the day is approaching when collections of grasses will be met with in gardens as frequently as we now meet with collections of ferns. Many of the nobler forms are adapted to almost any position in a garden; the Pampas grass is as appropriate in the centre of a lawn as it is on a knoll among rustic scenes, or on a terrace where every detail must be in accordance with the demands of high art. For example, the common Ribbon grass, or Painted Lady (*Phalaris arundinacea variegata*), is known in our gardens as one of the most ornamental plants for the summits of banks and rockeries, and also suitable for the margins of beds, and to form lines of glittering silvery foliage in borders planted on the “ribbon” principle. The Tussock grass makes grand clumps of fountain-like foliage, suitable for the margins of wilderness walks, and among mixtures of plants in the borders. Clumps of the Sugar grass (*Holcus saccharatus*), the Italian Panick (*Panicum Italicum*), the Feather grass (*Stipa pennata*), and others, have a remarkably graceful appearance, and contribute much to the enjoy-

ment of an inspection of the various forms and colours which well-kept borders invariably display. But the place *par excellence* for the display of a collection of grasses is that part of the garden usually denominated "fernery," and where the tasteful cultivator will always have other plants besides ferns, if for no other reason to bring out the distinctive characters of these elegant plants by means of agents which afford contrast and relief. Plants which have ordinarily a perpendicular habit of growth, and which gratify the eye by the elegantly traced or gracefully curved lines of their leafage, invariably show to best effect when elevated to the level of the eye, and hence ferns and grasses require to be planted on banks and knolls to exhibit their true characters and distinctive marks of beauty. Besides this, the disposition of the soil in banks, knolls, and irregular terraces, enables the cultivator the more perfectly to provide for their various requirements, and in fact to imitate pretty closely the condition in which the plants are usually found when growing wild. In the formation of banks and rockeries, various kinds of soils can be employed, and positions may be chosen to suit plants that are of various habits—the alpins for the summit, the marsh plants for the base and for the margin of the lake or rivulet, and those of more accommodating habit where they will look the best, and assist by contrast to bring out the characters of other plants with which they may be associated. It is only in a suitable rustic scene, combining within a comparatively limited space the various adjuncts of water, rock, peaty and sandy hillocks, and level terraces of fat loam, that grasses, ferns, and alpins can be disposed of to the best advantage; and where such facilities exist, the cultivator will do well to introduce ornamental grasses, and give them at least as much attention as is now bestowed on ferns and miscellaneous rock plants. What a beautiful object is a clump of the common Canary grass (*Phalaris canariensis*). How superb in its glaucous colour and exuberant leafage is the Glaucous grass (*Elymus glaucescens*). What is there to surpass the grace of a patch of elegant grass (*Briza maxima*, or *B. gracilis*), when throwing up its queaking spikes among the stones in the front of a rockery; and for tropical-looking clumps to fill conspicuous positions among ferns, cannas, and other graceful-habited plants, the varieties of maize and holcus are unequalled for beauty and distinctness.—GRAMEN.

SEA-WEED MANURE.—Sea-wrack, or, in plain terms, the common sea-weed that lines the shore in many places, has been brought forward as a cotton-yielding substance, and in consequence has caused considerable discussion as to its merits or demerits for such a purpose. This I must leave for others to determine; but by it I am reminded of the great use it is to the horticulturist when he can obtain it as a *mulching material*. When I lived near the coast in Essex, I constantly used it in summer, between growing crops, covering the ground to the depth of three or four inches; the soil being light and early, it was of the greatest benefit, as it kept the soil moist and cool, and the saline particles which it contained acted as a fertilizer. Slugs are not fond of it, hence it is one of the best materials to lay between rows of strawberries. It is slow to decay, therefore I should not recommend digging too much of it into a light soil, unless previously decomposed; but on heavy land I think it would act as a disintegrant of the soil.—H. H.

PETUNIAS FOR EXHIBITION.



SUPPOSING you have young plants to begin with, and they are intended for exhibition or conservatory decoration in the autumn, keep them in a temperature of 60° or 65°, and as soon as they have got four pairs of leaves, pinch off the tops. When the plants have broken, and the breaks get half an inch long, pot them into three-inch pots, using a mixture of peat, leaf-mould, loam, and sand, equal parts of each; and as soon as the breaks get long enough, peg them down with wooden pegs. By the end of March they will want stopping again, the close-growing ones at the sixth joint, and the wide-growing ones at the fourth joint. As soon as the plants begin to break, pot them into five-inch pots, using the same compost as before. After this shift, and as soon as they begin to grow, they will require a lower temperature. Keep stopping and pegging down, and by the end of May they will want shifting into eight-inch pots, using a compost of half loam, one-quarter leaf-mould, and one-quarter peat, and sand equal parts. Keep stopping and pegging down until the end of June, and in the first or second week in July they must be stopped for the last time, stopping every shoot, and endeavouring to keep the plants as symmetrical as possible, so that when they come into bloom they will require but little tying. The best shape is half a globe. By the middle of July they must have their final shift into eleven-inch pots, using a compost of half-fibry loam, one-quarter leaf-mould, and one-quarter rotten cow-dung, and sand, equal parts of each. As the plants grow, great attention must be paid to pegging down and training, also to watering, for at this period if they get dry it is very injurious to them; and as the buds begin to swell, they will require stimulating with liquid manure, which should be given to them rather weak, every time they are watered, until the flowers begin to expand; after that it should be discontinued. They will then require shading from the hot sun. By the above treatment, double petunias will be worthy to occupy the places at our September exhibitions that pelargoniums do at our June shows.—JOHN THORPE, *Leicester*.

MANAGEMENT OF WINDOW FLOWERS.



IN the volume for 1867, page 239, occurs an admirable paper by Mr. Coldwells on the management of window flowers. Several of our lady readers who have little opportunity for horticultural practice beyond what the window or balcony affords, have requested something further on the same subject. For the present we offer them the

remarks which follow, and we hope shortly to be enabled to present a serviceable list of plants adapted for window and balcony cultivation.

GIVING AIR.—The frequent occurrence of the direction “to give air,” in garden calendars, should have full force in regard to window flowers. However free from dust or injurious exhalations the atmosphere of a room or small conservatory may be, the plants kept there require as much air as the temperature and other circumstances will admit of. Even in the depth of winter, we have occasional warm sunny days, when, if only for an hour at noon, the windows should be opened, and the fresh air allowed to play amongst the foliage; and at other seasons, air should be given regularly, as a matter of course. Too often window plants get air only by accident, and the consequence is that they get weak and spindling; their blooms fall in the bud, the leaves turn yellow, and insects appear in numbers to prey upon their unhealthy juices. But certain precautions are necessary. Cold draughts are generally injurious; a whistling east wind, that would cause an attack of toothache to the cultivator, will not be likely to benefit any rather tender plant, especially if it has been previously kept in a warm temperature. So, also, an intensely hot sunshine will be likely to exhaust the plants; and a smart gale will sometimes cause the leaves to flag as if they had not had water for a week past. I will tell you how to kill a collection of plants in an hour, and the process will perhaps serve to impress upon the mind the necessity of avoiding whatever approaches to violent treatment in the management of plants. You may purchase from a hawker a few hydrangeas, pelargoniums, genistas, and cinerarias, in full bloom. Place them on the flagstones, where there is a brisk breeze and a bright sun. Then drench them overhead three times with cold water from the rose of a common watering pot. In an hour’s time, they will be found in a drooping and dying state, and no novice in horticulture will be able to restore them. They are, in fact, killed through the rapid transition from a warm forcing house to a fresh breeze and sunshine, and the chill caused by the dash of water upon them.

SUNSHINE AND SHADE.—A south widow is the proper place for the majority of plants that produce gaily-coloured flowers. But a north widow will serve admirably for plants already in bloom, and which it is desired to keep in perfection as long as possible. Usually, the ardent cultivator of window plants appropriates the north aspects for ferns and lycopodiuns; and if these are well managed, they are always beautiful. But there need be no such strict rule observed. Our own collections of window ferns enjoy a little sunshine at all seasons, and are the better for it; and, on the other hand, camellias, cytisuses, primulas, and Alpine auriculas will thrive in an airy north window, and bloom to perfection if kept safe from frost, and otherwise properly cared for. Window plants can be moved about, and, when forming their bloom buds, it will be a good rule to let them have some amount of sunshine, especially those that bloom early in the year. The form of a plant will be very much determined by the direction in which it receives light; and some writers

recommend the growers to turn the plants round, so as to prevent those of a shrubby kind from acquiring a flat shape: this should not be practised as a matter of course. Slow-growing herbaceous plants, such as primulas and auriculas, hyacinths and tulips, must be kept equally balanced by occasional turning; their outlines do not admit of forming a face to the light, and, unless turned, their flower stems will bend over, and have an unsightly appearance. But camellias, and other shrubby plants, might be allowed to form a face to the light with advantage; when in bloom, they can be reversed in the evening, so as to display their full beauty in artificial light, and be returned next morning to grow in their own way. There are no colours among flowers so charming at night as white, lilac, and crimson; yellow and blue are not readily distinguishable; hence, for decorating a room in winter and spring camellias and primulas are unequalled.

THE ART OF BUYING PLANTS.—Thousands of pounds are annually expended in London in the purchase of window flowers, and perhaps sixty per cent. of the money is wasted.* The plants are generally worth what is paid for them; but they are unsuitable for the purposes to which they are put, and numbers of them perish a few days after taking the places assigned them. The pretty genistas, calceolarias, geraniums, and ericas, that hawkers carry about in the months of February and March, have just left snug forcing houses, and are already chilled by their untimely exposure for sale. To furbish up a warm greenhouse they may occasionally be useful, but the people who buy them are rarely able to keep them alive more than a few days, simply because it requires more skill and better appliances than they possess to do so. Experienced growers never buy plants of hawkers; though it must be admitted, in justice to those poor men, that they lay the foundation, by the sale of a sixpenny plant, for the love of floriculture in many a home; and if the windows are made gay with their sparkling flowers for a few days or a week, the pleasure is not dearly purchased. The worst of peripatetic trading is, that the purchaser has no guarantee and no remedy. A nurseryman will not stoop to the trick of potting stocks in full bloom from the open ground, knowing that in a few hours the fraud will be discovered; but a hawker will make up a grand basket of stocks and asters that have been stuck in the pots only an hour; and the purchasers grumble to their hearts' content when he is out of sight and out of hearing. It is not a good plan to buy plants in full bloom at any season, unless they are wanted only for a temporary purpose. An expenditure of a few shillings in hawkers' plants will make an entrance-hall or window very gay for a few hours, or a day or two; but those who want to keep the plants should buy them when just coming into bloom; then, if placed in a cooler air than they have had previously, the chances are that it will only delay, not destroy the bloom, and you have the whole enjoyment to come; whereas, when in full bloom, the greater part of the beauty is already gone. In the case of pelargoniums, camellias, and

* Perhaps we are wrong here. If the plants live but an hour, the purchaser may derive pleasure from them far in excess of their cost.

other plants, of which some varieties are less pleasing than others, it would be well to see one blossom fully expanded; and in selecting from a number, choose those that are short, sturdy, and compact, with plenty of healthy foliage and plump flower buds; then, if one bud is open to show the colour, you know what the rest will be, and they are sure to open well and last their full time. We have heard novices praise plants because of their being "beautifully tall," whereas the genuine gardener would bestow his praise on those that were "beautifully short;" for good culture produces a compact, close, stubby growth, with small intervals between the successive side shoots; and the grower of window plants must aim at the same object, by giving the plants abundance of light, frequent change of air, and nipping out occasionally the points of the longest shoots, to cause the side shoots to push and form a bushy mass.

WATERING AND WASHING.—Water is necessary, not only to keep the plants alive, but also to keep them clean. Yet there are many window plants that should never be wetted on the leaves; and, happily for the novice, there is a rule for determining this point. Take a nice *Begonia rex*, with its grand foliage in its highest perfection of colouring; sponge the leaves over with cold water, and set the plant out on a balcony, and it will probably die in a few hours. Serve a camellia the same way, and it will not be hurt. The first has a succulent and absorbent leaf; the second, a hard, shiny leaf. Now, plants with soft, porous, and hairy leaves should be very cautiously wetted overhead; but plants with hard, varnished leaves may be wetted frequently. *Cinerarias* will enjoy a moist atmosphere, and absorb from it a large amount of water; but to bathe the leaves would be more harm than good; a gardener may do it, and have a reason why—as after fumigating; and he will also take care not to expose the plants to cold draughts after the operation; but an unpractised hand should follow the rule of wetting only such leaves as are of a firm, hard texture; and for this purpose it will be best to use tepid water, except in the height of summer. At the same time, whatever other method can be devised to keep plants clean should be adopted; as, for instance, removing them while sweeping, dusting, etc., are going on, for the leaves are the lungs of plants, and if the leaves get coated with dust or soot, it is impossible the plants should thrive. A soft brush serves admirably for the removal of dust. When hard leaves are infested with vermin, which will never come except through neglect, a sponging with soap and water made into a lather will be effectual. It must be followed with clear water to remove the soap. Never water a plant unless it requires it. The rule of watering once a day is mischievous. Some plants require water twice a day, some only once a week. When plants are at rest, they require very little, or none at all; and the colder the weather, the less water must be given. Unless the water percolates through the whole mass of soil, and finds its way out freely at the bottom of the pot, the plant will soon go to ruin. If the soil has got so hard that the water runs away next the sides of the pot without wetting the roots, loosen it a little with a skewer, or plunge the pot to the rim for half an hour,

then let it drain by placing it so that the hole in the bottom is clear away from whatever it rests on. In spring, when fine weather suddenly follows a long frost, and the plants have got very dry, through the fear of injuring them by watering them in cold weather, this process of plunging is very beneficial; but they must have no chill afterwards, and should be allowed to get nearly dry again before the next watering. Warm, and even hot water, may be used to water the roots of plants in active growth, but the beginner is recommended not to adopt the practice with any plants that are much prized, as, unless judiciously managed, it is apt to cause diseased appearances in the leaves, and a too sappy state of the stems. On the other hand, the water should be of the same temperature as the room in which the plants are kept; it may be a few degrees warmer with benefit, but it should never be colder, or disease will follow.

HOW TO SELECT PLANTS FOR WINDOWS must depend on taste and convenience. Bulbs are as gay and as easy to manage as any subjects in the florist's catalogue. If good, they are sure to bloom, however badly managed; and the worst that can happen is to have to throw them away when the bloom is over. But there is no real occasion to lose any bulb, whether flowered in water, sand, or good soil. Hyacinths and crocuses, flowered in water, may be restored to vigour by planting them carefully when the bloom is at an end; perhaps few window-gardeners will succeed in making much of them afterwards; but it can be done, and is but a small matter where the conveniences exist for it. A rich, sandy soil, the roots spread out without injury, and the bulbs covered from four to six inches, according to size, are the only necessary conditions to enable the bulbs to complete their growth; but even then they ought not to be flowered in water the next season, but be planted out in October, the blooms nipped out as soon as they appear, and the season following they will be strong and fine, and fit for any purpose. Among herbaceous plants, Alpine auriculas and primulas are admirable for windows, as they may be raised from seed, and afford all the pleasure of cultivating from the first. Even if not grown to perfection, they will be sure to bloom, and, perhaps, give more real gratification than the best that can be purchased. Among shrubs, those with hard, shiny leaves bear with smoke and dust better than any; and the principal points to attend to will be to encourage growth immediately after bloom, and, when the growth is completed, to give very little water, plenty of air, and a moderate amount of sun to insure the ripening of the wood. Unless the wood of the year is well ripened, no hard-wooded plant will bloom well the next season. Among geraniums, the crimson and white uniques are among the best window-plants we have. Of the scarlets, a list of the best is given in the almanack. These will grow well in good loam, broken up with sufficient sand to render it light and porous; the addition of one-fourth part leaf-mould will improve the soil; and if there are no conveniences for the preparation of composts, most nurserymen will supply enough for sixpence for potting twenty or thirty plants. Pompones chrysanthemums are everybody's flowers. If badly grown,

they are sure to bloom when their time comes ; and if the old plants are kept in winter, and a few of the best-rooted suckers are potted in April or May, the sorts may be kept from year to year, and the cultivator may become expert in producing dwarf, bushy plants, loaded, not only with dozens, but hundreds of flowers.

The lists have been arranged, so as in a great measure to render further observation unnecessary. We again recommend a perusal of the paper on "Amateur's Greenhouse," in the GARDEN ORACLE for 1861, because in it will be found minute instructions on potting, propagating, training, and blooming, which it would be unwise to repeat, and to which we could add but little. The writer has for many years past furnished flowering plants for the window of an invalid wife, whose enjoyment of garden scenes has been contracted to this last resource of the sufferer fond of flowers. The task has been equally delightful and instructive ; and one of its results is the conviction that ten times the number of subjects enumerated in the almanack might be included in a list of flowers for every day in the year. But there is another point of no small importance, and that is, as to the influence of plants in rooms upon the health of the inmates. Much that has been said on this subject needs to be unsaid. A large number of plants in full bloom would undoubtedly be prejudicial in a sleeping apartment ; and the more powerful the odours of the flowers, the more baneful their effect. But a few healthy plants in an airy apartment need not be dreaded as agents of death ; and the relief they afford to the mind may often prove the best possible medicine for the body. But there are few who would be so unwise as to crowd a sleeping-room with plants ; and it is but right we should caution our friends against keeping highly-scented flowers in a bed-room at any time, except for an hour or two.

S. H.

THE TWO STREAMS.

UPON a leafy mountain height two streams came gushing forth,
 One bubbled from the sunny south, the other from the north ;
 One leaped and sparkled joyously, as clear as summer sky,]
 The purple flood the other rolled went slowly creeping by.

Beside the one green rushes grew, and blushing buds and flowers ;
 Beside the other, men were chained in poison-breathing bowers ;
 One welcomed sweet wild birds, to sing their hymns of praise and joy ;
 The other breathed the breath of sin, and tempted to destroy.

The one went sparkling cheerily beneath the noon-day sun,
 And spread around life, health, and peace, where'er it chanced to run ;
 The other was the stream of death, with sorrow on its tide ;
 And whoso stooped to drink therein must Satan's curse abide.

The stream which gave such joy to all leaped from a rocky well ;
 The vineyard sent the other forth to work a death-like spell ;
 They both have flowed for countless years adown the steeps of time ;
 One spreading grief and wickedness, the other bliss sublime.

THE VILLA KITCHEN-GARDEN.—No. VIII.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



CELERY.—The best varieties of celery for gardens of limited dimensions are *Turner's Incomparable Dwarf White* and *Ivery's Nonsuch Red*. To these may be added *Cole's Crystal White* and *Cole's Superb Dwarf Red*. Those who require celery in September fit for the table ought to sow in heat the first week in February, and again at the end of March, and, for still later crops, out of doors in the middle of April. Those sown in heat under glass must be sown thinly, and they must have abundance of light and air to give them strength. About once a week, when the leaves are quite dry, dust them over with a sprinkling of silver sand or dry peat soil, sufficient to give them a slight earthing. They will require careful attention in watering, but must not be watered with a rose on the water-can, as, when the leaves are wetted, they seldom get dry again, and then many of the young plants damp off. Those for the first crop should be pricked off into pans or boxes, and kept under glass until the end of April; the later sowings may be pricked off in the open air. The best position for them is on a firm, hard bottom, upon which should be placed three or four inches of half-decayed leaves, upon this another three inches of rich nice soil in which to plant out the seedlings. Prick out the plants six inches apart each way, and shade and water on a moderate scale until they are able to withstand the heat of the sun without flagging, but continue the watering as occasion may require, for the secret of growing good celery is to keep it always growing; for if it receive any serious check in the earliest stages of its growth, it is liable to run to seed instead of hearting. When the plants are wanted for the trenches, cut them out with a sharp spade the whole thickness of the soil into squares three inches over. These may be carried to any part of the garden without injury.

The work of preparing the trenches is so simple that I only need add they should be five feet apart from centre to centre, and each trench should have at least three inches of good rotten dung dug in at the bottom.

In stiff or unkind soil it is best to plant on the surface, but the ground must be first well manured. For the early crop the plants ought to be out in the trenches the first week in June, and, for the main crop, the middle of July is not too early. For the latest crop, which is best planted on the surface, the beginning of September is the latest time allowable in ordinary seasons.

We come now to the work of watering and earthing. An abundance of water during dry hot weather is of great importance where fine large heads are required, and sewage or manure water at every alternate watering should be given if possible, as the plant is naturally a gross feeder. I prefer to tie up each plant separately

with a piece of matting, removing this tie and adding another higher up as the plant advances in growth, allowing the last tie to remain, as it serves to keep the plant in its place, and assists materially the work of earthing. The earthing of the first crop should commence early in July, completing the operation by a repetition of the first process, for two small earthings are better than one large. The other crops may be left until September, tying them as just advised. At this time only sufficient should be earthed up to carry on the supply, as the longer celery is earthed the more liable is it to suffer from damp and vermin; but all must be earthed up before frost occurs in November, except the last planting. This may have just a little earth put to it, and be completed in fine dry weather the following February. This will carry on the supply as long as it is possible to get celery fit for the table.

When celery is properly bleached it will keep for two or three weeks, if taken up and laid in silver sand away from the frost and damp, all affected parts being first taken off.

THE ZONALE PELARGONIUM: HOW TO GROW IT AND HOW TO SHOW IT.

BY JABEZ J. CHATER.

Gonville Nurseries, Cambridge.



THE zonale Pelargonium is a plant to be desired, possessing as it does so many qualities to recommend itself above other plants. It is, generally speaking, of free and easy growth, possessing colour in flowers or foliage of almost every hue. It is a plant alike suited for the cottager's window of six panes of glass, imparting, as it sheds its lustre, contentment and happiness to all, equally as it grows and blooms under the Italian terrace of some noble lord's mansion, displaying beauty and variety to all around. Again, what more grand, more noble, yet unassuming?—not flaunting, but majestically elevating its flowers enamelled with beauty, simply yet significantly borne aloft, adorning the zones and hemispheres of verdure—its own. It is much introducing itself to the estimation of all flower-loving individuals, because it is a plant so highly useful and so thoroughly ornamental. What would our gardens be without it? Others have more or less dilated upon its use. In this instance my object is to speak of its qualities as a highly decorative object for the house or conservatory, as an exhibition pot plant; and by a few practical observations to bring it before the public as a plant affording to the amateur the greatest possible amount of pleasure and satisfaction, in the simple yet ultimately successful method of cultivating it.

The first point to take into consideration, when one's mind is fully made up what number, variety, and style of plants are to be

grown, is to secure nice healthy plants as early as possible in the spring—say February; not mere varieties which first come to hand. I always contend it is as easy to grow the best of everything in its own class as it is to grow inferior ones. I admit there is a difficulty for an amateur commencing to know which are the best; he must therefore rely upon the recommendation of some friend cognisant of this matter, or else place himself in the hands of a salesman, who will recommend him such flowers as are well known for their sterling merits, and not give novelty for the sake of the thing. To a beginner who would not require more than six plants, I should recommend the following:—

1. Dr. Lindley, orange scarlet. 2. Beauté des Suresnes, lively rose pink. 3. White Perfection, pure white. 4. Madame Ninette Sachero, salmon suffused with scarlet. 5. Fair Rosamond, salmon, crimson centre, white margin. 6. Æstival, bright rose cerise. If twelve plants and twelve varieties are required, add—7. Inquisitor, brilliant scarlet. 8. Eunice, rosy scarlet. 9. Marion, soft pink. 10. Marechal Forey, deep scarlet, white eye. 11. Roi de Italie, orange shaded rosy salmon. 12. Beauty, white salmon, tinted centre; or Masterpiece, rose salmon shaded.

The above are all finely-shaped flowers, bold and solid trusses, free habit, and good growth, possessing good foliage, and are not to be beaten in their respective colours.

Supposing, then, plants are in possession, and only in 48 or 60-size pots, and require shifting, the most suitable soil (and which must be procured if not at hand) would be to mix up a bushel—one-third loam of a yellowish turfy nature, or from the top spit of an old pasture laid up for two years and turned over to the action of the atmosphere, one-third of thoroughly decayed manure from an old cucumber bed, or, what is better, cow dung well weathered, one-third silver sand, with a good proportion of fine charcoal and peat earth, cocoa refuse, or leaf-mould. It is not well to give too great a shift at first; if well rooted in a 48 pot, the change from a 48 to a 24 will not be too great—pots which have been well burnt and new ones are preferable, at the bottom of which cover the hole with an inverted oyster-shell or piece of crock, over which, to preserve good drainage, take either the coarse siftings of peat or turf, about the average size of a walnut, and on the top of which lay a few pieces of charcoal with about two dozen pieces of half-inch bones or a small quantity of bone-dust; transpose the plant, first carefully removing all the crocks it previously had; fill up and around firmly with prepared soil; place in a frame or greenhouse as near to the glass as possible, in a temperature of 50° to 60° Fahrenheit, allowing air pure and fresh to circulate freely about each plant on all occasions. If the plant is intended for exhibition in June, it will require shifting in April into the desired size pot or pan; and to make the shoots pliable, and to bring it into whatever form or shape is thought best, delay giving water till the shoots show signs of withering; a slight twist with a tye will bring it to the required place. The most desirable form of an exhibition table would be that of a mushroom shape. I would strongly urge

upon growers the conical or pyramidal form, a new feature for the growth of these plants, which, when well organized, will prove exceedingly interesting and highly appreciable. So soon as the plants become well rooted (or better understood as pot-bound), liquid manure may be given twice a week. Do not allow the plant at any time to droop for want of water, bearing in mind always that plenty of air—not currents of air passing through or around the plant, but a free and general circulation—is conducive to the health, free-flowering, and full development of chromula or colour in the leaf and flower. Perhaps the Cape varieties will never be so much in vogue as pot plants—they do not possess such bold and showy nor so well-formed flowers; still there is a great diversity both of colour and foliage amongst them, and many will ever remain favourites for the variety of scent in their foliage. To grow them successfully, the soil as prescribed will suit them well, with the addition of a little more peat earth, and a drier and rather warmer temperature for the freer flowering of them. Many being tuberous rooted, are better grown in pans, and kept nearer the surface of the soil; do not water so freely the more succulent kinds.

The distinguishing properties of a good Pelargonium should be, first, the flower consisting of five petals, not too much overlapping each other, but well defined, smooth in outline, circular, and when pressed open leaving a perfect and undivided circumference. Whatever colour or colours, let them be well defined, smooth, and clear; the pedicel of the single flower must be long, and the truss having pedicels of equal length—not one long and one short—all well arranged on a stout peduncle forming a solid truss, yet displaying each flower, not too high above the foliage, but well standing out of it, and not covered by foliage; which latter also is a matter of great concern, and should not be too gross or spreading, but compact, of good growth, distinct in its markings, free and nicely standing out, gradually diminishing in size as it rises, yet retaining its character and definiteness of colour, etc. After the *season* has passed by—one, however, can hardly use such an expression, for the Pelargonium is always in *season*, so cheerful and bright is it either in foliage or flower—when October's sun hastens through its meridian, the day is fast declining, and its shadows are long, still on and on it lingers through November. At Christmas, when other flowers are gone, a wee bit of Tom Thumb or some other still keeps lingering on till spring-time is brightened by its beauty.

There must be a period of rest, and if the Pelargonium is a good-natured plant, and does not require so much as many of its congeners, it must not be over-worked.

So soon as it has effected the purpose of growing into a good plant, covered itself with bloom, and taken off the first prize on account of superiority of growth, and being much better both in point of quality of flower and freeness of flowering, let it have rest; cut off all flowers; stop back the growth to the required form; expose the plant to mature the wood before housing it again, and so soon as new signs of life appear reduce the plant into a smaller pot, keep close in a cool frame or house till it begins to grow;

afterwards, give all the encouragement you can afford, fostering the lawful ambition and desire to surpass and excel your neighbour; and whether your plants should grace an exhibition table or not, bear in mind if a plant is worth growing it is worth growing well.

CONCERNING BEGONIAS.



As a class of plants there are few which deserve our attention more than the Begonia, interesting at all seasons of the year, either for beauty of foliage or gracefulness of flower. In noting a few observations upon their culture, etc., I prefer dividing them into two classes—the one for foliage decoration, the other for prolificacy of bloom, because their culture should be somewhat different. I do not know that anything new can be advanced upon their general management, but with all beginners there must be line upon line, precept upon precept. “It’s only a Begonia” is the common reply of many of our grade to any question about it, and it is the subject of neglect, and used merely as a stop gap to fill up vacant places between others bearing a more aristocratic definition. February is a good time to commence with the foliage class. Prepare five-inch pots by first washing them, then place an inverted three-inch pot in the centre, and fill round with broken pieces of pot to the height of the inside pot; place a piece over the hole of the inverted pot, shake a layer of the very smallest crocks (not dust) over the whole, which will bring it level with the bottom of inside pot, leaving nearly two inches for soil, then a thin layer of moss, which will keep the soil from washing away the drainage. Before using moss for such purposes, it should be steeped in boiling water to clear it of insect life and render it sweet; this done, you have a pot drained to perfection. Prepare a mixture of one part loam, half part peat, half part leaf-mould, and half part silver sand, well incorporated together; fill up the pot with this, slightly make firm, insert two stout leaves of a sort with about half an inch of foot stalk, deep enough to keep erect without covering the collar, this being the part from which the future plant will emerge, water gently, and place in a temperature fluctuating between 70° and 90°, giving a slight sprinkle occasionally over head, and guard against the rays of the sun. When the crown is well up they will be rooted freely, and will require more water. Now prepare some eight-inch pots by thorough draining as above to the depth of two inches without the inverted pot; the soil should be one part loam, one part, one leaf-mould, and half part silver sand, well incorporated. Turn out carefully, remove the crocks, but not displacing any soil, pot pretty firm if the soil is in good condition, and does not bind. Remove to the same temperature as before, water carefully till the pot is full of roots, after which more bountifully at every third or fourth watering. A dose of clear liquid manure water will do wonders for them. In the course of four or five months from the time the leaves were put in they will be fit

for any exhibition table. It is far better to raise new plants yearly, and as soon as safely rooted consign the old plants to the rubbish heap.

Now a word or two about the flowering class. These I consider worthy a place in every collection of plants, but in what a miserable condition do we frequently see them, drawn up weak and spindly, instead of a robust constitution with plump matured wood, which is the only guarantee of success. As like will produce like in every thing all the world over, so is it here; if you put in half-starved cuttings for your future plant, you must expect a poor return; on the other hand, if your offspring be from a matured plant, grown slow and sure, you will have ample recompense for your labour.

I consider these indispensable for autumn decoration, and good plants may be grown for that purpose by putting in the cuttings as soon as they are ready; they do not require so much heat and shade as the others: anything like hurrying them is to spoil your future plant. They strike freely, and require the same management as ordinary stove cuttings. As soon as rooted, pot off into three-inch pots, and shift on according to growth into five or seven inch pots; they must be in their flowering pots two months before required to bloom; let them enjoy plenty of sunshine with air according. Of course they can be had in bloom at any time by altering the time of striking them, allowing four to six months for that purpose for sturdy growth. They are most valuable in the dull flowerless autumn months, when they will do duty well in a temperature of 55° to 65°, but are next to worthless unless they can enjoy the sun. They do well in one part loam, one peat, half part very decayed cow-dung, kept open with small pieces of charcoal well blended in a dryish condition.

A note of six good ones may be useful:—

Discolor, pink and yellow, very free.

Martiana, a beautiful rose, very telling among others.

Semperflorens, light rose, always in bloom more or less.

Manicata. Sturdy plants of this will bloom all through the winter, and look remarkably pretty.

Ingramii, scarlet, showy.

Parvifolia, small leaf, white flowering; good for exhibition when well grown, and for cut flowers.

Yeovil.

H. S.

ROSES ON THEIR OWN ROOTS: SPRING PLANTING.



MOST of your readers who have gardened must have tried roses on their own roots, and, planting them as received from the nurseries from October to January, have found many blank spaces in their bed at pruning time. The winter damps, the cold rains, and sharp windy frosts will have done their destructive work, and a few mildewed, withered shoots alone remain to show where you planted your duplicate of last summer's favourite or choice new rose.

Roses on their own roots are very desirable on choice rich soils ; in hungry, gravelly land, on the contrary, they are almost entirely useless, and should be replaced by roses on manetti or dog-rose, the stock or graft bearer there not throwing suckers in such rapid succession as they do on better land, rendering it difficult for them to be kept under by the amateur, who can give proportionately little time to his rose beds. Roses on their own roots in their suckering do but give strong shoots for next year's flowering, and so on good soils, where they are sure to do well, cannot be too much recommended.

Now nurserymen, to meet the demand for plants of this kind, strike their roses early in spring, and forcing them along the summer through, they grow until stopped by the cold autumn winds and rain. They are handsome plants, mostly in pots, vigorous, but the wood hardly hardened enough. The experienced amateur knows better than to plant out his newly received favourites in face of winter dangers. He carefully hardens them in some light, sunny, airy spot, handy for protection in case of sharp or bad weather, not necessarily under glass ; and as the genial April weather comes to him, plants them out in the chosen spot, whence they start with vigour into immediate growth, and giving him a good summer and autumn bloom, are thoroughly established to meet the frosts and perils of the next winter.

Roses on own roots need care in planting. Prepare a good bed ; the top spit of light, sandy loam mixed with well-rotted manure, is the soil they like. Once established in this, the roots soon find the subsoil. They will have been, if planted now, slightly pruned and in partial growth. Plant them shallow, with the collars of the plants about an inch below the surface of the soil ; if from pots, spreading out the twisted roots ; water to settle, and occasionally, if weather comes dry. If the nights be frosty, a slight shading of tiffany will suffice to save the started growth.

When the first flowers are over, peg down the shoots horizontally. It will induce your plants to throw vigorous shoots from the base, on which, too, you will find the best return flowers. I am referring more especially to the moderate-growing class of rose—hybrids, perpetuals, chinas, and teas. The climbing roses—Ayrshire, Bour-saults, and others, thrive and do always best everywhere in this way.

I have not given half the desirabilities of this mode of culture. If killed to the snow line, the lower buds of even the tenderest varieties remain uninjured, ready to shoot out with the approach of the favourable rose summer or spring. Hence, as a recent writer in a contemporary remarked, "It is advisable where a large collection is grown to have one of every sort in this way." At least, it should be added, when they do succeed, some roses not growing thriftily on their own roots.

GEO. PAUL, JUN.

Old Nurseries, Cheshunt, Herts.

GARDEN GUIDE FOR FEBRUARY.

IN cold districts, especially where the soils are heavy, there is nothing gained by sowing seeds particularly early, for if they germinate, the plants make no progress, and are frequently outstripped in the end by later sowings of the same sorts. In this month's "Finger-Post" we have named a few first-rate subjects for the kitchen-garden, which we hope will be useful; the object aimed at is to indicate a few varieties that are sure to give satisfaction, if fairly treated, without any attempt at a catalogue of good things. Next month we will endeavour to furnish a few more selections, both for the kitchen-garden and the flower-garden. As to this month's work, it is a continuation of the routine advised for January, and we refer the reader to the last number, page 29, advising that whatever has been left undone of the work there advised should be completed as soon as possible.

The GARDEN ORACLE for 1868 contains a carefully-prepared and somewhat copious calendar of operations.

NEW PLANTS.

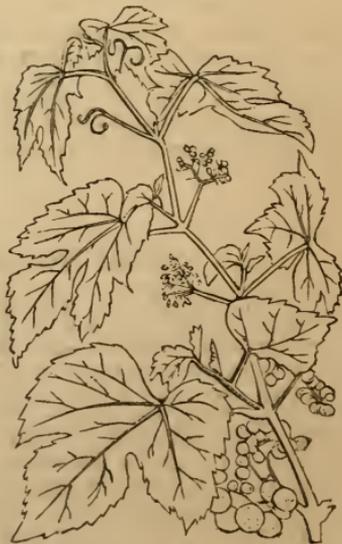


NYCTOCALOS THOMSONI, *Assamese Nyctocalos* (*Bot. Mag.*, t. 5678).—Bignoniaceæ. A beautiful stove climber, with compound leaves and beautiful tubular flowers, which are seven inches long, pure white, expanding at night and dropping next morning.

VITIS HETEROPHYLLA, *var. HUMULIFOLIA*, *Hop-leaved variety of various-leaved Vine* (*Bot. Mag.*, t. 5682).—Ampelidæ. An extremely pretty



NYCTOCALOS THOMSONI.



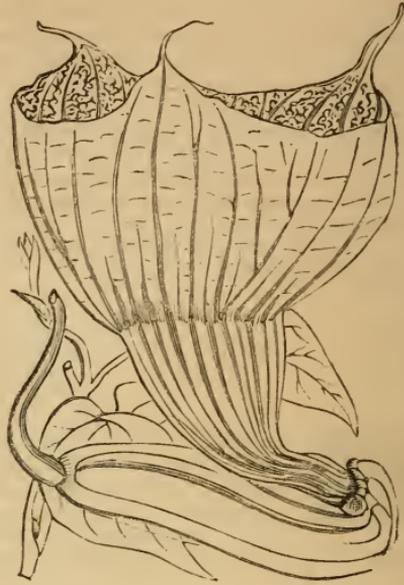
VITIS HETEROPHYLLA, VAR. HUMULIFOLIA.

Japanese vine, which is quite hardy in this country, and well adapted for clothing walls and trellises. The stems are bright red, the leaves resemble those of the hop, the berries are pale blue.

BEGONIA ROSÆFLORA, *Rose-flowered Begonia* (*Bot. Mag.*, t. 5680).—*Begoniaceæ*. Another charming *Begonia*, with large rosy pink flowers. It is stemless, with concave orbicular leaves borne on red stems and three-flowered scapes, the stems of which are red, and the flowers resemble those of the briar rose.



BEGONIA ROSÆFLORA.



ARISTOLOCHIA GOLDIEANA.

ARISTOLOCHIA GOLDIEANA, *the Rev. H. Goldie's Aristolochia* (*Bot. Mag.*, t. 5672).—A remarkable stove climber from South America. The leaves are cordate on long stalks; the flower is bent into two unequal portions; the lower portion surmounting the ovary about eight inches in length. The upper portion a foot long, funnel-shaped, and dilated into a three-lobed limb. The whole flower is of a pale green with brown stripes, richly mottled inside with brown and orange.

HOW TO MAKE A HOTBED.

If you get hot dung from a heap, and at once make up the bed, it will burn up every seed committed to it, and be exhausted in a short time. To secure a safe and constant heat, the dung should be first well shaken out, so as to allow the atmosphere to penetrate every portion of it. After two or three days, it should be turned over again, and a fresh heap formed in a new place, every lump being broken by the fork in the process. If dry, it must be sprinkled with water at each removal, and if very short and pasty, which may be the case if there is pigs' dung mixed with it, a moderate admixture of dry litter, such as fern, straw, old turf, etc., will give it more substance, for the duration of the heat depends on the quantity of undecomposed fibre in the heap. When it has acquired a moderate heat all over, mark out the place for it, a foot larger than the frame all round, drive in short stakes at the four corners, and shake the dung slightly within this space, just putting it together with the fork as you go on. It should be from three to five feet high, and the larger the bulk, the longer will the heat continue. Put the frame on so that the dung projects equally all round it, and tilt up the light to let off the foul gases. In a couple of days you may spread four inches of good loam all over it, and you may then sow what you please—cucumbers, melons, marrows, capsicums, tomatoes, tender annuals, etc., in pots. If you purpose fruiting any of the gourd family in

the frame, you can make room for them as other things are removed; and the way to plant them is to turn out the ball under the centre of a light, and then heap loam all round it, so as to make a hillock, the outer edge of which must be heaped up above the ball, so that the plant will stand in a basin at the top of a mound; water will then soak to the roots, instead of running off down the sides. It is better, if you can do it, to make up a second bed to receive the plants from the first, when they are ready for it, and so on, working from frame to frame, and the first beds, when half spent, will be found quite warm enough for things that require only a little heat. We raise our early annuals in beds after gourds, and sometimes spawn the beds for mushrooms after the annuals.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF THE FINEST PEAS FOR
GARDEN CULTURE.

Early.—Dickson's First, Sangster's No. 1, Emperor, Advancer.

Second Early.—Eley's Essex Rival, Princess Royal, The Prince.

Late.—Ne Plus Ultra, Knight's Dwarf Green Marrow, British Queen, Champion of Scotland.

HEAVY CROPPERS OF SECOND-CLASS QUALITY.

Bishop's Long-podded, Auvergne, Lynn's Wrinkled Marrow, Blue Scimeter.

A SELECTION OF BROAD BEANS FOR GARDEN CULTURE.

Early.—Mazagan, Marshall's Prolific.

Late and Fine.—Mackie's Monarch, Taylor's Windsor.

Profitable.—Johnson's Wonderful.

A SELECTION OF VARIETIES OF BEET FOR GARDEN CULTURE.

Nutting's Selected Dwarf Red, Pineapple Short-top, Covent Garden Improved, Dewar's Short-top, Cattell's Dwarf Purple-topped.

SELECTION OF VARIETIES OF BORECOLE FOR GARDEN CULTURE.

Cottager's Kale, Gibbs's Extra Curled Green Kale, Dwarf Green Curled Kale.

A SELECTION OF VARIETIES OF POTATOES FOR GARDEN CULTURE.

Early Kidneys.—Veitch's Improved Ashleaf, Grimsdale's Early, Sutton's Racehorse.

Early Rounds.—Smith's Early, Victoria Early, Early Handsworth.

Main Crop Kidneys.—Milky White, Prince of Wales, The King, The Queen.

Main Crop Rounds.—Daintree's Early, Pink-eye Radical, Flour Ball, Forty-fold.

TO CORRESPONDENTS.

FORCING SEAKALE AND RHUBARB.—*R. Birch.*—Dung-heat is the best when well managed, but hot-water pipes are now much used, on account of the greater ease and certainty in management. They may be forced in the open ground by putting seakale pots over, and heaping hot dung upon them. When the heat is

steady, pack the plants together in a mixture of old dung and leaf-mould, and lay boards over the frame to keep out the light. A still better method is to take up the plants, and pot them into Pascall's seakale pots, which totally exclude light, and enable the amateur to gather the crop without soiling his fingers. Rhubarb should be placed in the light, as darkness spoils its flavour. Our supply began with the new year from old stools [potted into fifteen-inch pots, not in soil, but waste fern and moss, tucked in round the roots, and heaped up over the crown; the pots were placed under the stage of a warm greenhouse, and the stalks pushed directly, and had enough substance to be well-flavoured and of a beautiful colour. As the supply from the open ground will soon be abundant, the potted stools will be planted out in trenches richly manured, and will not be gathered from all the season, so as to be strong for forcing next winter in the same manner.

POTATOES.—*S. B.*—To save potatoes for seed, sort out at taking-up time well-ripened potatoes of a middling size—neither the very smallest nor the largest. Lay them in the sun till they are green and dry, then sprinkle a little dry hay in some shallow baskets, and strew the potatoes in a thin layer upon the hay, and put the baskets on a dry shelf, out of the reach of frost. At the end of the year, place the baskets in a full light, in a warm place, till the sets have made little purple shoots of half an inch in length, and then plant them. That is the state seed potatoes should be now in for planting.

RHODODENDRONS.—*B. W.*—Rhododendrons may be increased by seed, layers, and cuttings. In the month of May, scoop out a little hollow under a branch suitably placed for layering, and fill it with sandy peat or half-rotted moss, well chopped up with silver sand, bend the joint down, fix it with a hooked stake, so that there will be no fidgeting with it after the branch is cut. Then loosen it from the peg, and with a sharp knife cut half through the stem and upwards an inch and a half towards the top of the shoot, taking care to leave sufficient wood and bark on the side not cut to maintain the branch in health. Insert a small pebble or slip of wood to keep the incision open; bend the branch down again, and bring the head of it upright, or nearly so, without breaking it at the cut part, and fix it firmly under the hook to the stake. Press the peat firmly about the tongue, and lay a bunch of moss over, with a stone or tile to prevent it being blown away, and leave the rest to nature. The branch will not be sufficiently rooted for removal for a year, when it may be cut away and carefully planted, with others similarly treated, in a nursery-bed of peat, and well supplied with water.

LILIUMS FROM SEED.—*A. B. S.*—All kinds of lilies are troublesome plants to raise from seed, as however good the seed may be, it is very slow to germinate. Seeds of the pretty *L. tenuifolium* we find are exceptions to the rule, for these germinate freely; but seeds of *auratum* and *giganteum*, about which you particularly inquire, remain a long time after sowing without making sign of a move. Some years ago we raised a batch of *giganteum* from imported seed by a very simple plan. The seed was sown in a large box filled with sandy peat, the seed being covered fully an inch or more, and the box was put out of doors, and so remained about fifteen months, when the seedling plants began to spear through. Lately we have got up a few good batches of both this and *auratum* by sowing in large pans, and keeping the pans in a warm corner of a pit, where we were compelled to see them occasionally. Whatever plan be followed, patience must attend it, and the soil should not be disturbed for a whole year, after the first seedlings make their appearance.

AUCUBA JAPONICA.—*A. B. E.*—All who possess uale plants must now be on the alert to obtain pollen for fertilizing. It is best to have the plants that are to be operated on under glass if possible. That aucubas in the open ground will become generally fruitful by the introduction of male plants amongst them has been demonstrated by experience. As to the raising of plants from the berries, we were unable to speak with any definiteness when penning the article which appeared in the No. for May, 1867. But having raised a number of plants from seed, we must repeat the advice offered in the note on Liliums, in favour of the exercise of patience. Not one of our seeds has germinated in a less period than six months, and some have not pushed their green blades through until the lapse of twelve months from the date of sowing. We have not tried them in heat, but in a cold pit only. But as we had a lot of seedling plants just pushing through at the commencement of winter, we removed the pans into a warm house for fear of losing any by damp or severe frost. We expect all seedling aucubas to bloom in their third year; perhaps,

by pushing the growth in heat, and carefully ripening the wood, some might be induced to bloom in the second year.

IS ZINC INJURIOUS TO PLANTS?—*T. S.*—Hypothetically we might consider zinc poisonous to plants, as the oxide formed on zinc kept moist is certainly poisonous to animals. But practically we do not believe plants ever suffer by contact with zinc. Take one example. The fern case figured in the *FLORAL WORLD* of January, 1858, is fitted with a zinc pan for the reception of the soil and the plants. Many of the ferns that were then growing in it are in it now; the soil and the zinc pan remaining as then; in fact, the same zinc, soil, and ferns have been together for over twelve years, and the state of the ferns at this moment is more than satisfactory; they are in luxuriant health. A plant of English ivy has been growing in the case about seven years, and is so vigorous that every spring it is freely cut back to keep it within bounds. Other fern cases in use with us have zinc receptacles for soil, and after years of observation we have never known the zinc to prove in any way injurious. We had a set of zinc watering-cans made for the garden some years ago, and they were kept in constant use until they were literally worn out, but we never saw the slightest indication that the plants were injured by this means. As to the policy of using zinc in many instances, we must confess that we doubt it. Cheapness is its only recommendation, and that is not a sound one, for the rapidity with which zinc rots when kept constantly moist renders it otherwise than cheap in the end. We shall certainly never have watering pots made of zinc again, and intend to employ copper coated with tin for large fern cases in future. If you suppose your plants to be poisoned by the use of zinc watering-pots, your proper course is very plain, and need not be suggested.

A. B. S.—Your letter on palms has been forwarded to the writer of the article, who, we hope, will have something further to say on the subject next month.

LILY OF THE VALLEY.—*Hardy.*—The loamy clay, the moist and shady situation, and the sufficient drainage, are just the right conditions for forming a bed of lily of the valley. Plant them a foot apart, two or three roots together or single scraps, and leave them alone for the rest of your days, except to keep away weeds, and every winter put on a sprinkling of good manure, without disturbing a single root.

REMOVING CEDRUS DEODARA.—*Hardy.*—It would have been better had you removed the tree in October, but it may be done now. Have the tree taken up with care, by first opening a trench round it by means of three or four-tined forks (real digging, not pitchforks), lift the roots, and heel the tree over. Do not attempt to lift it with a complete ball. When it is in its new position, have the roots carefully looked over to remove with a clean cut all injured portions, and to spread them out carefully. In filling in take care that soil is thrust into every crevice, and, if possible, use good tough turf or top-spit soil for it, and finish off so that the collar is somewhat above the general level. Before the last surfacing of earth is put on and the last treading in takes place, give a heavy watering to settle the earth about the roots, and let it so remain for a week; then finish the job, and stake the tree. The mode in which stakes are put to newly-planted trees is sometimes seriously injurious; a stout stake is thrust down close beside the stem, and the thickest and fleshiest portions of the roots are bruised, and as soon as they recover from that injury the stake begins to decay, and breeds fungus amongst them. Far better is it to put three wires attached to pegs driven into the ground at some distance from the tree, or, for temporary support, two or three poles put aslant, and meeting at the stem of the tree, answer perfectly. We shall be glad to hear from you on the subject you propose.

Polly.—Do not trouble yourself about the bits of iron in the manure from the farrier's; they will do no harm, and it is an easy matter to throw them out as they turn up in digging. Such manure should be quite rotted to powder ere it is fit for any plants in pots. The sale of the *ORACLE* has been so large, that copies could not be supplied fast enough at first.

CURRANTS IN NOVEMBER.—*A. B.*—It is only in cold climates and in cold positions that ripe currants can be kept on the trees till November; but in many gardens there are borders facing north where bush fruits of all kinds may be gathered very late in the autumn, and may be kept hanging for some time after becoming ripe if protected with netting. We have seen beautiful dishes of currants, raspberries, and morello cherries quite fresh and plump, on many occasions, at exhibitions in November and December.

TRENCHING.—A. B.—The way of doing this must depend somewhat on the nature of the subsoil : if this is good, the two spits may change places ; but if not, the under spit should be loosened and broken, and only in part mixed with the top. From what you say of your garden, we should suppose thorough trenching to be best for you, putting the top spit in the trench first, then the manure, and the under spit on that to form the new surface. At the next trenching the top spit will come up again, and in the course of time the whole depth of the two spits will become blended.

BERBERIS MACROPHYLLA—IS THERE SUCH A PLANT?—Can you, or any of your readers, inform me whether there is really a distinct species of Berberis called *B. macrophylla* ? In Johnson's "Cottage Gardener's Dictionary," I find in his list of Berberies "*B. macrophylla*, Japan, 1847," and I have also met with the name in some of the nurserymen's catalogues. On further inquiry, however, I have always been disappointed, the so-called *B. macrophylla* proving to be some other species. In Dr. Lindley's list of Berberies, published in 1859 in the "Journal of the Horticultural Society," the name occurs as a synonyme of *B. Wallichiana*. In the FLORAL WORLD for November, 1867, I wrote, "I had to send a great distance for *B. macrophylla*." When the plant, however, arrived, it turned out to be *B. microphylla*! and truly the change of one small letter makes a vast difference in these matters. I am now half-inclined to think that the existence of the plant I am in search of will prove to be a *myth*.—*J. J., Littlebourne.*

VIOLA CORNUTA, CLEMATIS JACKMANNII.—*Fels* asks the following questions :—1. Should *Viola cornuta* be cut down to the ground after blossoming, or should they be left with last year's growth upon them ? [No real necessity for cutting at all, except for neatness ; but the best display of flowers is to be obtained by completely renewing the plants every year.] 2. How far apart should the yellow and blue Cliveden pansies be planted to form a compact edging to a border, and should the blossoms be taken off at the present season ? [Plant them nine to twelve inches apart, and let them flower as they please ; peg them down as they extend.] 3. Also, will they continue to blossom all the summer months ? [Yes ; but they bloom most freely in spring.] 4. Is it *better* to cut in newly-planted Clematis Jackmannii which are intended to form a border (pegged down), or, being the first year's growth, should they be left as they come from the nurseries ? Mr. Jackman states "they *may* be cut down to four eyes," but does not state that they *should* be so treated. [Best to cut them back to four eyes, as there is ample time for them to make a free growth before their flowering season commences.]

FRAXINELLA.—I should be very much obliged if you would kindly tell me, through the FLORAL WORLD, whether *Dictamnus alba* requires any particular care in cultivation. About two years ago, I got two plants from a garden in the south of England where it has flourished for years, and they have barely existed with me, growing only a few inches high, and looking utterly miserable. They are both in sheltered situations—one in a stiffish soil, the other in a sandy one. The latter is slightly less wretched than the other. The climate here (Kildare) is certainly colder than that from which they came, but it is not severe ; peaches ripen well most summers in the open air.—*C. E. C. T.* [The Fraxinellas are no more particular as to soil and climate than the groundsel, therefore it ought to grow as well in your garden at Kildare as in the south of England. But there is some little mystery about this plant nevertheless, for many people try every means imaginable, and never succeed in securing it as a permanent plant in the garden ; while in other cases the same plants have been known to outlive three or four generations of men. The only peculiarity we have ourselves observed in its cultivation are these three—1st, it cannot be easily multiplied by slips or cuttings ; 2nd, that it may be multiplied readily by means of seeds, which *must be sown as soon as they are ripe* ; 3rd, that all kinds of garden vermin are fond of it, and if snails, slugs, and wood-lice abound in a garden, it is next to impossible to keep the Fraxinella, so perseveringly do they nibble it away as fast as it grows. There are three species in cultivation—*D. alba*, with white flowers ; *D. fraxinella*, purple ; and *D. taurica*, pink.]

THE FLORAL WORLD

AND

GARDEN GUIDE.

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ROUGH AND READY GARDENING.—NO. II.

A CHEAP DISPLAY OF ANNUALS.



IMMENSE quantities of the seeds of annuals are sold every season, and it follows that they are largely grown. Yet it is but seldom we see them turned to the best account, and by a very great many gardeners who ought to know better they are openly despised. They have their faults, no doubt, but they also have their virtues. If some of the showiest soon pass away after acquiring their highest perfection, it is but small labour and a brief space of time they demand to bring them to that perfection. Nor are they all so easy to manage that the cultivator who loves to grapple with difficulties can afford to condemn them on that score. I will venture to say that there are many annuals in cultivation that are scarcely ever well grown, and that to do them well would demand more skill than has ever been bestowed upon them. These few remarks are made to prepare the way for the assertion that annuals are worth attention everywhere, and that the grandest promenade garden might be kept splendidly furnished with such plants alone. Therefore the rough and ready gardener need not be ashamed to patronize them, for it will be his own fault alone, if, so doing, he finds his garden full of weeds.

To do justice to annuals the soil should be light and rich. It is true that amongst the many plants to which the common and very general designation of "annual" may be applied, the most opposite characters are to be found, yet by far the greatest number of those most worthy of attention will be found to make the best display when grown in open sunny borders, that have been prepared for them by deep digging, and the incorporation of a liberal amount of well-rotted manure.

We will suppose that the reader has a few borders furnished with such things as were recommended in No. I. of this series. There will, no doubt, be room for many clumps of annuals in the border, and if they are well selected, a delightful display of colours

will be the result. I prefer large clumps to small ones, and few colours and sorts to many. A person who desires to make acquaintance with species and orders of plants, may find in a selection of annuals a great help in botanical study. But if the embellishment of the garden is the principal object in view, repetitions are desirable, and I should advise the sowing of large clumps of a few sorts of annuals in regular order as to their heights and colours. Let us now select a little batch for these clumps, and such as in every case may be sown out of doors in March.

ANNUALS WITH RED FLOWERS FOR CLUMPING.—The pretty “Rose of Heaven” (*Agrostemma cœli-rosa*) makes a fine clump, sown rather thick; the plant grows a foot high, and there are several varieties entered in seed catalogues, the best being *hybrida flore pleno*, which has double flowers. *Crimson Candytuft*, or *Iberis umbellata*, is a fine annual, which lasts long in bloom if sown in autumn, but will make a good display if sown in March. *Silene armeria*, or *Lobel’s Catchfly*, produces abundance of pretty corymbs of rose-coloured flowers. *Clarkia elegans* is well known; it thrives best in poor soil, and lasts longer in bloom if sown in autumn: but it may be sown now in any kind of soil, and will in due time make a beautiful display. The double *Clarkias* are rubbish. *Dianthus chinensis*, the *Indian pink*, must not be sown in the open border until April, but blooms earlier and finer if sown on a hot-bed in March. All the varieties named in catalogues are good, and may be purchased with perfect safety. *Saponaria calabrica* is a lovely little rosy-flowered plant, which flowers all the summer long; it is useful for any bed or border, or even for an edging to a bed, but the flowers are so small that it produces no effect at a distance. *Silene pendula* makes a charming clump of bright magenta, or pink. *Viscaria oculata* is an elegant plant with rosy flowers; all the varieties of this are good.

ANNUALS WITH WHITE FLOWERS FOR CLUMPING.—One of the very best is the white variety of the *Common Candytuft*, or *Iberis umbellata*; while it lasts, there is no white flower in the garden to equal it. The white *Virginian Stock*, or *Malcomia maritima*, may be sown on any day throughout the year, except when the ground is frozen; therefore the “rough and ready” gardener should have always at hand a pinch of seed to fill up any gap that occurs when nothing better can be found for it. The pure white variety is the only one I shall recommend, but all the sorts are useful. The *White Lobel’s Catchfly* is good. *Clarkia pulchella alba* will do for clumps, but it is rather weak and washy. *Collinsia bicolor* is a well-known annual, the white variety of it well deserves a place in this selection. *Silene pendula alba* is extremely neat and pretty, growing only six inches high. *Campanula speculum*, or *Venus’s Looking-glass*; the white variety of this is as pretty as the blue.

ANNUALS WITH YELLOW FLOWERS FOR CLUMPING.—*Athanasia annua* was first brought into notice as a good thing by our correspondent Mr. Howlett. It grows rather too tall for clumps, but may have a place in the second or third row. Its height is one and a half to two feet; the flowers are like yellow buttons, plentiful and

pretty. *Bartonia aurea* is also tall, but useful. Everybody knows the "Ranunculus marigold," and as we cannot do without it, we recommend the best variety, which is called *Calendula officinalis superba*. A very charming clump may be made with *Chrysanthemum carinatum*, if the plants are freely thinned out in their early stages of growth. We now come to the finest yellow-flowering annual known, *Erysimum Peroffskianum*, which blooms all the summer long, a splendid deep orange colour. To get early flowers the seed should be sown in autumn, but it will do well if sown in March. Strange to say, this is almost too good for clumps; it is, in reality, a bedding plant. The well known *Escholtzia Californica* and *crocea* are true clumping plants, and fine for the purpose; they flower earlier if sown in autumn. *Leptosiphon aureus* we cannot do without. *Pectis angustifolia* is a novelty, and the only novelty we shall include in this list. Nearly all the sorts we recommend may be obtained in threepenny packets; but the plant now before us will cost a shilling for a pinch of it, but it is so good that we must have it, and those who love it when they see it in bloom will find no difficulty in saving seed for the next season. The plant forms a close tuft a foot across, and only three or four inches high, and the flowers occur at the ends of the branches. *Sanvitalia procumbens flore pleno* is usually catalogued as a half-hardy annual, but the seed may be sown in the border in April, and it will do well. It is almost too good for clumps, and is a true bedder. Lastly, *Viola lutea*, though a perennial, may be treated as an annual, and is first-rate.

ANNUALS WITH BLUE FLOWERS FOR CLUMPING.—The best of this class is *Campanula carpatica*, but it must be sown early in a frame, and better if in a greenhouse or on a gentle hotbed, and as soon as the plants are large enough to handle, they must be pricked out into pans or boxes, and taken care of till large enough to plant out. The *Purple Candytuft* is worth a place in any garden; when true, it is splendid, but there are some very inferior sorts in trade. *Collinsia bartsiaefolia* is fine. *Eutoca viscida* is a good blue, and pretty. *Gilia achilleæfolia* is a valuable annual; it may be sown at any time, and anywhere, and therefore should be kept at hand to serve the same purpose as Virginia stock. *G. laciniata* and *G. minima cærulea* are also worth having. *Kaulfussia amelloides* is a lovely annual. The *branching Larkspur* may be had in a variety of colours, but without a doubt the blue is the best of all, and makes a brilliant clump or bed. The Lupins are mostly too tall for clumps, but we cannot do without *Lupinus subcaruosus*, which is one of the grandest plants known. If sown early, it flowers the first season, and will last five or six years afterwards. Fortunately it only grows a foot high, and is therefore just the thing for our purpose. *Nolana paradoxa* is a charming blue-flowering plant. *Veronica glauca* is a novelty; a pinch of the seed may be obtained for sixpence. It grows four inches high, and is covered through the summer with pretty blue flowers. *Viola cornuta* may be treated as an annual, and makes a pretty clump. We never thought it good enough for bedding, and so have never recommended it. We omit the convolvuluses and many other good annuals as unsuitable for clumping.

We will now suppose that some of our readers have geometric gardens and groups of beds which have been originally designed for the display of greenhouse bedders, and are now to be appropriated for annuals. It is a fair case to suppose, and it enables us to gather under one head a few annuals that we consider best of all adapted for bold, rich, distinct bedding effects.

ANNUALS ADAPTED FOR BEDS AND LARGE MASSES.

Tom Thumb Tropaeolums, or *Dwarf Nasturtiums*.—These are cheap, and extravagantly gay, producing a better effect at a distance than when viewed near at hand, as there is a certain coarseness about them. There are many distinct varieties, and it is a matter of frequent surprise to experienced cultivators that these varieties retain their characters with admirable uniformity, so that if a packet of seed of a scarlet-flowering kind (for example) be sown, there will not occur amongst all the plants more than two or three that are not scarlet, and strictly in accordance with the type. The simplest way of dealing with these is the best; sow them in March or April where they are to remain, putting in the seeds singly, six to twelve inches apart every way. As soon as they begin to show the slightest colour at the points of the flower-buds, look over them carefully, and remove any that are not true. The gap from which a plant has been removed may be in great part hidden by drawing towards it the next nearest plants, and fixing them with a few short sticks in that direction. It is advisable, however, to sow a few seeds of each sort in a mixed border, or in pots, expressly to have a few extra plants to mend the gaps where "rogues" occur. We repeat that there is a certain coarseness about these plants, but the poorer the soil, and the drier and more sunny the position, the less coarse and the more brilliant will they be; and all things considered, they are the cheapest and the easiest to grow of all known bedding plants. The following varieties are good:—*Cattell's Scarlet*, *Tom Thumb Scarlet*, *Tom Thumb Yellow*, *Tom Thumb Crimson*, *Tom Thumb Pearl*, a rather flimsy white, yet very suitable for a group of beds wholly occupied with these plants; and *Tom Thumb Rose*. Messrs. Carter have advertised a new variety, with violet-coloured flowers, which we have not seen.

Antirrhinum Tom Thumb.—This is a very dwarf variety of snapdragon. It is quite new, and rather dear. The colours of the flowers are various, the plant rising only nine inches high. To grow a bed of this, the best way would be to sow the seed in pans or boxes, as early as possible in March, and help them on in a frame or greenhouse, giving them the usual treatment of bedding plants, such as pricking off into other boxes, to afford more room for growth, etc., and finally planting them out early in May, in a raised bed of sandy soil, in a sunny position. There may be a little difficulty in obtaining the true seed of this fine variety; we know that Messrs. E. G. Henderson, Wellington Road, St. John's Wood, and Mr. Fraser, Lea Bridge Road, have it correct.

Campanula carpatica, white and blue, have been described above; they make lovely beds, and are really better treated as annuals than as perennials.

Candytufts of three colours are available as described above.

Dianthus chinensis in several varieties. The best, perhaps, is the *dwarf striped*; this makes a rich bed, and blooms earlier and better if the seed is sown early in a frame.

Escholtzia crocea makes a pleasing, but not splendid, bed of yellow flowers on a groundwork of glaucous leafage.

Mixed Heartsease makes an interesting bed for a moist shady position, where plants that love sunshine would not thrive. Sow the seed thinly in March, and when the plants have made some progress, thin them to a foot apart. A better bed may, however, be made by sowing in pans or boxes in a frame, and planting out in moist weather, when the plants have three or four leaves each.

Scarlet Flax, or *Linum grandiflorum rubrum*, is a splendid annual for the "rough and ready" gardener. Let the bed be well prepared and liberally manured, and in March sow the seed in lines, putting the seeds about four inches apart every way as nearly as possible. Cover them with a quarter of an inch of fine mould, and they will soon come up and make a finer bed than if more care were bestowed upon them. Whenever this plant fails it is through doing too much for it.

Enothera taraxacifolia alba, a lovely white-flowering, dwarf-habited evening primrose; makes a fine bed if sown early, and thinned to a foot apart.

Paeony-flowered Poppy makes a gorgeous bed for a short space of time, and may do for a centre of a group, as the plants rise three feet high. They are generally past their best in time to be succeeded by some autumn-flowering plants, and in case of a bed thus furnished, it would be a good plan to plant out the succession plants amongst the poppies. Very much may be done in this way where annuals are grown, so as to have successions without blanks. The *French Dwarf Poppy* grows only a foot high, and makes a fine display.

Sweet peas, planted two feet apart all over a raised bed, without sticks to support them, have a very fine appearance; and as seeds can be obtained in distinct colours, here is a fine subject for limited purses and grand notions. The beds should be large to look well.

Portulaccas are gorgeous bedding plants, if rightly managed. The bed should be raised, and consist in great part of broken bricks, old plaster, and sandy loam, and the position should be dry, sheltered, and in the full sun. To do them well the seeds should be sown in pans of sandy loam, and assisted with a little heat in March, but they may be got up in a cold frame, and if sown on the bed itself, six inches apart (a difficult task with seeds as fine as dust), they will all grow and flower, but later than those started under glass. If grown with the help of a frame or greenhouse, they should not be pricked out, but kept in the seed-pans until May, and then planted out into the bed. From first to last give them as little water and as much light as possible. A shilling packet of seed of any of the varieties will furnish plants enough to cover a space twelve feet square, or perhaps thrice as much, if well managed. If only one sort is required, perhaps *Thellusoni* is the best.

Sanvitalia procumbens flore pleno may be treated as a hardy

annual, and if sown in a bed will give a fine mass of brilliant gold yellow. It is usually described as half hardy, but there is no occasion to give it the attentions that half-hardy annuals require.

Stocks make rich beds, and are easy to manage. Select your sorts, and begin on the 20th of March. Sow the seeds in fine soil in pans, only just covering them deep enough to put them out of sight. Put these pans in frames *without heat*, and take care of them, keeping them close to the glass, and allowing them plenty of air, but with judgment. While they are growing in the frame prepare the beds for them by digging them deeply and manuring freely, and leave them as rough as possible. About the 15th of April throw on the beds a thin sprinkling of quite rotten manure, then slightly fork the surface over, break all the clods and level it neatly, and it will be ready for planting. As soon as the bed is prepared expose the seed-pans night and day to the weather, and seize the first opportunity when the weather is moist, warm, and dull to plant out the stocks in the bed; they should be planted four to six inches apart, and be put in as deeply as possible without burying any of their leaves. Thereafter, from time to time, thin them, and either destroy or plant elsewhere the thinnings. When there is a glimmering of colour amongst them, look out sharp for single flowers, and draw out those plants and destroy them. As the single flowers usually open first, they will probably be all got rid of ere the double ones open, and then there will be a fine display, which will last till frost stops it in the autumn. This is the simplest and *the best* code of treatment for stocks. All the sorts are good, but there are too many. Those called *Dwarf Bouquets* are the best for beds, and the best colours are *scarlet* (this is a fine pinky red), *dark blue* (this is really a purple of a fine indigo tone), and *flesh colour*. Those who can sow intermediate stocks in August, and keep them in frames all winter, may have finer beds than the bouquets make from spring sowings. Yellow stocks are pretty and sweet, but quite washy and weak, if regarded as bedders.

Viola lutea makes a nice bed of yellow, and *Viola cornuta* will furnish a mass of blue. There is a certain weakness of effect, however, about both these plants, and they have disappointed many. As rock and border plants they are charming, and ought to have a place in every garden.

To keep annuals in bloom for the longest possible time, all seeds should be removed as fast as they are formed. In some cases this is impossible, but where the seed pods are large enough to handle, their removal should be followed up systematically. Many subjects that only last in bloom a few weeks, if allowed to keep their seeds, will last the season out if the seeds are removed as soon as formed, and that means simply cutting off the faded flowers. S. H.

EVERGREEN SHRUBS FOR TOWN GARDENS.



THIS is the best time in the whole year, save and except September and October, to plant hardy evergreen shrubs, as they are just on the move, and as soon as they begin to grow will make new roots vigorously, and be greatly aided by the increased warmth of the earth and the frequent showers of rain, so as to get tolerably well established before there is any likelihood of injury from draught. The month of September, or early part of October, is the next best time, as the trees have then finished their growth, and will make fresh roots before winter, and thus get hold of their new stations without difficulty. Indeed, any time of year is preferable to the depth of winter, and the many losses that occur among newly-planted evergreens in suburban gardens may be generally ascribed to winter planting, for the earth is then cold, the trees are quite at rest, and the small injuries they receive in taking up at the nurseries and in conveyance to their destination, added, perhaps, to a touch of frost at their roots, render it necessary that they should be set growing immediately, in order to recover them from these shocks—a thing utterly impracticable with plants in the open ground. But when the planting is deferred to March and April, or even so late as May, the natural activity of the sap in the trees recovers them immediately from all small injuries, and instead of the wounded roots rotting in the cold wet soil, as in winter, they heal very quickly, throw out fresh fibres, and take to their new positions immediately. Of course, in the event of a very dry spring, it will be advisable to supply newly-planted shrubs with water at the root and overhead. But it must be a very long and severe drought to render much watering at the root necessary, for it is seldom the soil gets dry far below the surface at the time when trees are making their growth, and when their growth is completed, drought is not of much consequence. To guard against the probable effects of a dry season, and to give the trees a good start, it is well to have all the stations on which evergreens are to be planted liberally manured and deeply stirred, and when the trees are planted, and firmly trodden up, a layer of three or four inches depth of half-rotten dung on the soil over their roots will greatly assist them, and render watering at the root quite unnecessary. We must caution beginners, however, not to apply manure where any kind of coniferous trees or American shrubs are to be planted. Americans, it is well known, require good peat, and it is simply murdering them to plant them in any other soil, unless it be a good mixture of such materials as decayed cocoa-nut fibre and leaf-mould, in which some of them will grow tolerably well. As for coniferous trees, it is equally a folly to plant specimens of any value in poor exhausted garden-mould, and if there is any intention of rendering these really a credit to the place, it will be well to make the stations for them with three feet depth of stiff turfy loam. The best manure for conifers is dried or rotted turf and leaf-mould; when they are planted on poor sandy and chalky soils, a mulch of

half-rotten dung on the surface, after the trees are planted, will benefit them greatly, but to mix animal manure with the soil anywhere near or amongst their roots is calculated to do them great injury. Those who plant town gardens, however, should know exactly what they are about ere they plant a single coniferous tree of any kind. For all such free-growing evergreens as Aucubas, Portugal Laurels, and Box, etc., the soil usually found in gardens will suit admirably, if liberally manured; and it is astonishing what a difference in their growth and appearance is effected by good treatment, as compared with that they usually receive in suburban gardens.

In the vicinity of London most evergreens thrive amazingly. The smoky atmosphere is to a certain extent beneficial; it is, in fact, fattening; and the soil being mostly a good wheat loam, and very fertile, we see everywhere in the suburban gardens magnificent breadths of evergreen shrubs, such as indeed are not surpassed by the gardens of any other district in Great Britain. But the benefits of smoke are most distinctly seen where it is mingled with the atmosphere in but small quantities. As soon as we come to within three miles of St. Paul's, we encounter a more decidedly smoky atmosphere, and many of the most valued trees and shrubs show the effects of it in their languishing appearance. But even in many of these smoky districts the shrubs would put on a much better appearance if their proprietors would enrich the soil about their roots, and of course without injuring those roots, with good manure, for very often the soil is exhausted by centuries of cropping and bad treatment, and perhaps almost impervious to water, and more in the condition of cement than pabulum for plants. It is at what may be called the junction of town with country, ranging in a circle three to five miles from the central parts of the City, that the selection of trees as to their capabilities for enduring smoke is a matter of any great importance. Beyond five miles, it is a question of soil and climate, not of smoke, whether any particular tree will thrive; but within that range there is more or less risk, and of course the risk increases as we proceed inwards towards the centre.

Our suburban readers will ask, perhaps, what we can recommend within the limits of safety, and happily we can recommend many of the finest shrubs we possess as suitable to grow anywhere in a moderately open position, where there is some share of sunshine, and the soil is neither a dry cement, nor a muddy batter. First among the best of evergreens we must place the *Aucuba Japonica*, and all its new varieties, which will grow anywhere if properly planted in the first instance. It is worthy of notice that these fine shrubs require a good soil; but when once established on a good soil, grow compact, and require little or no attention at all. But the soil must be good, deeply stirred, and if in any degree impoverished should be freshened up with a dressing of manure. The *Aucuba* is peculiar in this respect, that it is most reluctant to die, so that if it grows badly it gets more and more unsightly, and instead of dying outright, and so compelling the proprietor to plant again, it continues for years in the guise of a scarecrow, always promising

to improve, yet always getting worse, until at last there is scarcely the semblance of a tree about it. Examples of these languishing trees may be seen in London gardens by thousands. Most of them would recover, and look handsome again, if they were assisted to make new roots by digging round them, and introducing good manure, and plenty of it, and at the same time cutting the trees down to the ground, or to within a few joints of the base of each shoot, and giving them a chance to begin life again.

Next to the *Aucuba*, we must place the Tree Box, *Buxus sempervirens*. Unlike the *Aucuba*, which does not thrive so well in the shade as in the open, the tree box is an excellent subject to plant under the shade of large trees. There are several varieties, many of them with variegated leaves. They make an abundance of fibrous roots, and are very exhaustive of the soil; therefore in planting them it is well to use manure liberally. *B. balearica*, the Minorca Box, is one of the choicest evergreen shrubs we possess, with large bright green glossy leaves, having somewhat the character of a myrtle. This is a most admirable shrub for entrance courts, and to associate with architectural embellishments. It will not endure the shade of trees so patiently as the common box, but it is not at all particular as to the smokiness of the atmosphere, though it is rather tender.

The *Holly* and its varieties are among the best town trees. Any one who doubts the capability of the holly to endure smoke, need only take a peep at the garden of the Bank of England, and there will be seen some dozens of respectable green hollies which have been there many years, and which grow about as fast as hollies elsewhere—and that, as everybody knows, is slow enough. The common green holly is the best for all ordinary purposes, and, like the box, it is one of the best of evergreens to plant under the shade of large trees. We have seen the hollies survive all other kinds of evergreens, where such fast-growing trees as horse-chesnuts have been allowed to grow up amongst plantations of shrubs, and by degrees kill them out with their increasing shade, and the screening from them of every drop of rain. Among the variegated hollies, the common *white-edged* and *gold-edged* are the fastest growers; and as the trees vary considerably in their tones of colour, the selection of examples is a matter of taste. One of the most noted varieties is that called *Milkmaid*, which, however, is very inconstant, as it frequently produces large breadths of green leaves, and often shows only small patches of variegation on a general groundwork of dark green. The *Hedgehog hollies*, which have very small curled leaves, covered all over with prickles, are the slowest growers of all; and those who want fine specimens must either pay the price for them, or wait half a lifetime for them to grow. Variegated hollies will not endure either smoke or shade with such patience as the species out of which they have originated. If heavily shaded by trees they soon become one mass of dead sticks; and if subjected to close confinement in very smoky districts, their appearance is never grand enough to render them anything but cumberers of the ground. But when freely used in terrace lines, entrance courts, and broad borders

skirting the main walks, the variegated hollies are the noblest of all the evergreen shrubs we possess, and their cheerful colours give a most agreeable and chaste relief to the darker tones of most other evergreen trees.

Daphne laureola is not usually classed with the shrubs suitable for town; yet it ought to be, for it will grow anywhere. Any soil, any dark and unpromising position, provided it has shelter against the cutting north-east winds that occur at the season when it produces its sweet-scented flowers, will suffice to make this, if left alone a few years, one of the most beautiful ornaments of a town garden.

This, and the deciduous species *D. mezereum*, are the only two Daphnes that are well adapted for any suburban districts within three or four miles from St. Paul's. Beyond the four-mile circle, *D. Fioniana* forms a charming dwarf shrub, with myriads of its rosy-crimson flowers in spring.

Enonymus Japonicus is a real townsman's friend. It may be seen in all parts of London forming nice round peculiar-looking bushes in the little forecourts where genuine gardeners are never seen or heard of. Some of these trees are to be found six or seven feet high, and on almost any day throughout the year they will be found to present a better appearance than trees of the same kind growing in the country. But to get this shrub to a height of six or seven feet is a task requiring a combination of Job's patience with Methuselah's longevity; and most of those who are now planting must be content with specimens two, three, and four feet high at the utmost, until they have passed at least their best days, and have taken a turn down-hill.

Our next subject is the *Portugal Laurel*. This is one of the noblest evergreens we possess, a true promenade, lawn, and terrace tree, and worth growing to the greatest possible dimensions, where there happens to be room for fine specimens. It is much to be regretted that the Portugal laurel requires a tolerably open position, and a comparatively pure air. We should not think of planting it in any part of the City of London, or at any less distance than at least one mile from the Bank; but at that distance it is perfectly safe if placed in a sunny open position on a generous soil, and assisted during the summer with occasional washing of the foliage by means of a shower from an engine. In the garden of the Kensington Museum are some fine Portugal laurels in a perfect state of health, and close by, in the society's garden, standard Portugal laurels have been planted in considerable numbers, and are doing well. We can call to mind many other good examples nearer London than this, but we know no Portugal laurels worth the ground they occupy within a mile of St. Paul's.

The *Common Laurel* and the *Sweet Bay* are of the same comparatively delicate nature as the Portugal laurel, but there is perhaps no spot in which a tree of some kind would grow, however smoky, but in which the sweet bay would live, if it did not present at all times a classical appearance. It is, in fact, a very accommodating tree, and if the circumstances are tolerably favourable to vegetation, it may always be planted with a prospect of success. With the

common laurel it is otherwise. Plant it on a good sound loam, not nearer to London than the three-mile circle, and it grows with immense vigour; plant it in any soil—no matter how good—in the midst of houses, and where soot is plentifully deposited, and it becomes an obnoxious mass of sticks, with a few ragged leaves fluttering about them. The common laurel is not a high-class shrub under any circumstances. It makes a fine hedge, and is one of the best of the shrubs for a screen. It is not to be despised as a clothing for a fence, or wall; but in a mixed shrubbery, or on the borders adjoining lawns, it can scarcely be considered appropriate, for it always suggests that there is something to be hidden.

The *Colchican Laurel* differs considerably from the common laurel in its larger and more tapering leaves. It is in every sense richer both in character and colour, and it happens also to be some degrees hardier than its congener; therefore, where it is desired to have plantations of laurel, and they are found not to thrive, the Colchican laurel should be tried, and there will be these advantages in favour of the experiment, that it is a much finer species, and much more adaptable and accommodating in habit.

Let us not forget the high claims of the *Phillyreas* upon town gardeners. What a magnificent appearance does a fine specimen—say twenty feet high and as much through—of *P. illicifolia* present! The glossy dark green, neatly formed, and abundant foliage of the *Phillyreas* renders them quite classical in character, and though they will not endure to be planted under the shade of trees, or very near to high walls, they only require a tolerably good position, and they bear any amount of smoke with the utmost patience. There are three species in common use; the one just named, which has holly-like leaves, is the best, but *P. angustifolia*, with smaller leaves and a less robust habit, and *P. latifolia*, with broader leaves, are both beautiful and useful.

The *Lauristinus*, or *Viburnum tinus*, is an exquisitely beautiful shrub when grown to a large size and full of bloom. But who can grow it to a large size and full of bloom in London, or in any other great town of this kingdom? No one. In southern and western counties it is a grand subject for winter flowers; but in Middlesex, and thence away north, it can never be depended on to expand its flowers, though it tantalizes its possessor with the offer of thousands in the bud every year. It is rather impatient of smoke, but not so much so that any Londoner need fear to plant it on that account; but in the event of a hard winter, it is one of the first of evergreens to suffer, and in an extreme case—as, for instance, 1860-61—it is pretty sure to be killed to the ground. But let us tell the lovers of fine shrubs and easily-obtained winter flowers what to do with *Viburnum tinus*. Grow a dozen, fifty, a hundred, as many as you can find room for in pots. In ten-inch pots fine specimens may be grown. They should be purchased now, and be potted firm in a mixture of three parts strong turfy loam and one part rotten dung. Plunge them in a bed of coal-ashes or cocoa-nut dust, and give plenty of water till the middle of July; after that do not give a drop. Some time about the middle of October, or earlier, remove

them all to a cool greenhouse or orchard-house, or glass shed—to any place, in fact, where they will have real shelter, plenty of light and air, and be sufficiently far apart not to kill each other by crowding. They will require very little water, but some they must have; they must not go dust-dry. So also they must have all the ventilators open every day, except during frost, and then they may be kept rather close, for our object is to avoid giving any kind of check. If the winter is mild, the greater part of them will begin to flower at Christmas, but in any case they must remain in their snug quarters, and have no aid from artificial heat until they flower. When the flowers are full out, that lot of plants will be a fine sight. But if the weather is mild at the time, they may all be taken out and plunged in a bed under the drawing-room window, or be grouped in clumps on the gravel, and none who care at all for flowers will consider the trouble too much by which such a sight was procured. In the event of severe frost, those plunged may take their chance; the worst that can happen to them will be the destruction of their flowers; but any placed on the gravel, or with the pots exposed to frost, must be housed, or plunged to the rim, or their roots will be injured, and the trees may die the next spring.

All the *Privets* are patient of smoke, but no one would plant the common privet except for the purpose of a fence, or to occupy positions where nothing else would grow. Yet the common privet is not to be despised. When it gets old, and flowers freely, it is a fine object, and there is this to be said of it—it is the tree for a forlorn hope. When the case is so bad that neither hollies, aucubas, nor box-trees will stand it, try common privet; better than nothing, though truly when it has to grow under great trees, or in other very bad positions, it has a very lean and wobegone aspect. Nevertheless, it is a hard tree to kill, and it may oftentimes do duty in the suburban garden, and save the proprietor many losses and vexations. Its near allies, the Chinese privet, *Ligustrum lucidum*, and the Japanese privet, *L. Japonicum*, are among the most beautiful evergreens in our gardens, but they are not trees for smoky towns; they require a pure air, and are for the fortunate suburbanite who sees from his windows meadows and corn-fields, and is called to breakfast by the thrush and the skylark. At three miles from St. Paul's, and thence outwards, plant these two privets, and never prune them till they grow too great for the place; they will never fail, winter or summer, to give a cheerful air to the scenes they occupy.

S. H.

THE TROPICAL END OF THE CRYSTAL PALACE has been rebuilt, and was first used a fortnight since for the annual bird show.

THE ALEXANDRA PALACE AND PARK at Muswell Hill are fast approaching completion, and are likely to be opened in June next, on which occasion there will be a flower show on a grand scale.

MESSRS. CUTBUSH AND SONS' EXHIBITION of Hyacinths, Early Tulips, and other forced spring flowers, will take place this year at the Gardens of the Royal Botanic Society, Regent's Park, commencing on the 21st of March, and continuing to the 28th. Tickets are to be obtained at the gardens only; the price is 2s. 6d. each.

ON PROTECTING WALL TREES WHILE IN BLOOM.

BY JOHN F. M'ELROY,

Head Gardener at Moray Lodge, Campden Hill.



THE erection of glass structures against walls, and the building of orchard-houses, have somewhat superseded out-door crops. Their cheapness, combined with the facility for their removal as well as erection, must, as time progresses, render them extremely popular, so that in every garden, however small, where a wall is to be found, it will create no surprise to find the same converted into a glass structure for the growth of wall fruits, so adapted as to combat with the conflicting elements of an adverse atmosphere without. Yet while gardens remain without these valuable aids for the growth of peaches and nectarines, we must content ourselves by adopting such means as we have at our command for guarding against the sudden changes of our climate. The question is, what kind of attack do we seek to check by employing covering? In the first place, we must admit that judicious covering to peaches and nectarines while in bloom is indispensable. The next consideration is how and when it should be used. To begin, we would have the covering ready, and fix it in case of need, as soon as the blooming buds exhibit their colour, the object sought by its use is to preserve the vital powers of the pollen, and this can only be done effectually by maintaining a *dry atmosphere*, as far as possible, in and around the blooming portion of the tree. This teaches us how and when to employ the covering. Cold, dull days are often the forerunners of rain, snow, or sleet, and sometimes a combination of all three, generally followed by frosty nights. Here, then, we should be on the alert, and be ready at a moment's warning to drop the covering in a slanting direction, so as to carry off rain, etc., etc.; the ends and middle to be fixed tightly to stakes, to prevent their flapping against the trees. If rain or snow is allowed to settle on the pollen, and does not quickly dry, or should frost follow, the pollen rots, and thus loses its fertilizing properties. This is the true secret why after a good display of bloom there is but a scanty crop of fruit, or none at all, in ninety cases out of a hundred.

Some persons, I have observed, permit the covering to remain over the trees both night and day, till they can discern the fruit. The consequence of this injudicious treatment is in the course of time to materially affect their health, creating an enlargement of the stomates or pores of the leaves, which causes them when subject to a change to partially collapse, so that insects increase among them rapidly, and thus the wood becomes weak and of a sickly hue. Others, on the contrary, pull the covering down every evening, and fold it up in the morning. This practice is quite unnecessary in dry weather, as it tends to the exclusion of so much light and air, and only contributes to weaken their growth, for when this rule is mechanically followed the covering is often allowed to remain on

longer some mornings than others. Every facility should be afforded to bees to revel among the trees, as they are a valuable assistance in impregnating the flowers.

My plan is never to cover unless I observe signs of a cold rain, which generally is followed by frost; but, if the weather is dry, slight frosts will not in the least affect the bloom or fruit, the heat absorbed by the wall on fine days being sufficient to repel the cold.

During the spring of 1863, which was remarkable for the fine dry season generally, the fruit set in abundance, and I only pulled the canvas over them once. When the fruit is developed to the size of peas, you may take the coverings down and pack them away, as the foliage will afford sufficient protection to the fruit.

The material we use is tiffany, both for that purpose as well as shading plants, as I have proved it to be light and durable.

PERMANENT EDGINGS FOR FLOWER-BEDS.



WITH the majority of amateurs now plotting their plantations for the season, broad masses of colour will have careful considerations, and the edgings will be thrown in as makeweights. When the beds lie scattered, or in pairs, it scarcely matters what the edgings are, provided they define sharply and distinctly the boundary lines, and afford an agreeable relief to the colourings of the beds. High colours are, generally speaking, objectionable as edgings; first, because they are offensive to the eye, and make a pretence of carrying the eye further, and as it were away from the picture into empty space; and, secondly, because the beds themselves are appropriated to high colours. If we examine a classical composition in colours, we shall invariably find that the outlines are picked out in white, black, and yellow; and these are the best of all relief agents to light up a design, and to bring out the broader masses of red, blue, crimson, and so forth. The ancients were very fond of black with yellow lines, and the effect of such colouring is superbly rich and forcible. But in garden colouring we cannot follow classical models closely, for the simple reason that we usually have two strong tones already to hand, and to these two we must adapt our patterns. Suppose a mass of rich purple needing an edging, there could be nothing better than yellow for the purpose, if we regard the purple only; but if the bed happens to be on a broad surface of bright gravel or turf, the yellow is weakened, muddled, and in fact spoilt. But a line of silver makes as good a boundary to purple as yellow, and tells well against grass or gravel, and to any except the most vulgar eye the silver will carry the day against the gold. It is very important to consider the edgings in connection with the surroundings of the patterns. On grass, white and silvery edgings tell the best of any; on gravel, blue Lobelia, Perilla, Amaranthus melancholicus, and other dark colours, are remarkably effective. Near bright grey or white masonry, as on an architectural terrace,

slate-colour and blue come out more distinctly than white and silver. Near burr and root-work, yellow edgings show their proper character, as do also all the kinds of foliage which are usually described as silver. These are a few generalities which may be useful to many who have not yet thought much about the rules needful to be observed if taste is to be respected, and for the present must suffice, for we had no intention of generalizing at all when we commenced these remarks. The object of this paper is to suggest the adoption of permanent edgings where admissible, both to reduce the expense of a bedding display, and render the edgings useful at seasons when bedders are under cover. We may for a moment consider where permanent edgings would be most useful. The place in which to turn them to best account is unquestionably in a compact Italian garden, where the whole of the bedding scheme forms one distinct design, and where the design is in fact an object of some interest where there are no flowers in the beds. In panels, and in fact in all geometric gardens, permanent edgings would much reduce the gardener's labour, reduce the expense in the event of the plants for the display having to be purchased annually, and save some part of the dreariness which characterizes geometric gardens in the winter season. Let us suppose now that we have a case before us—a set of beds grouped according to a distinct design, and needing to have the outlines all picked out in sharp bright lines of a tone of colour suitable to help out the effects of any and every colour that it might be desirable to use in the beds. In such a case the chances are ten to one that *one kind of edging all through* would be better, artistically considered, than two, three, or any number of kinds. We cannot imagine a more chaste, more manageable, more sparkling, or more classical plant for edging all the beds in a neat composition, so placed as to be viewed collectively from any particular point, as that prettiest of all the ivies, *Hedera helix marginata argentea*, or, if the Latin name be too long, say the "Silver-leaved Ivy," which name will do at a respectable nursery, where they would sooner die than palm off some inferior variegated ivy as the true silver-leaved, though at some of the little places they would do it without a blush, and quiet their hardened consciences by the reflection that anything is fair in the way of business. This silver-edged ivy is, in the first place, quite hardy and evergreen; and hence, when it is once fairly established, it is equally beautiful winter and summer, and will form as grand an edging to the pompones in November, the crocuses in March, and the tulips in April, as for the geraniums and verbenas all the summer. Plant this ivy not more than eighteen inches apart in a good loam without manure, train the growth right and left by means of pegs, and in due time it will meet and thicken, and form glittering silvery lines which will make the scarlets and purples in the beds many degrees brighter by contrast. Those who grow all their own material for decorations may get up a good stock of this ivy in a year, by beginning at this season, as there is no difficulty in striking cuttings all the summer. For large beds that stand alone, and especially if raised above the general level, common *Irish Ivy* makes a grand edging.

One of the most effective of edgings—but effective only during summer—is the *Variiegated Mint*, which grows freely in any soil, and produces a dense mass of creamy-white foliage, which is indescribably telling as a boundary to any strong colours. There have been many strange tales told of the way to manage this plant; but the fact is, it requires very little management, and the grand point is to plant it in as poor and dry a soil as possible, for a rich soil drives the variegation out of it, and produces green instead of creamy leaves. It may not be known, however, that this is one of the best of plants for what we have elsewhere described as “Instantaneous Bedding;” * and to make the matter plain, as far as concerns the present subject, let us suppose we had to furnish out a furlong of edging this season. We should secure a barrowful of old stools of the plant, and divide them into scraps consisting each of one stem, with a fair share of both under-ground and above-ground growth; and we should plant these six inches apart, so as to leave only half or quarter of an inch of the growing tops above-ground, press the soil firmly to them, give them a good watering, and cover them with pots till the weather changes to a thorough soaking rain and sunless sky, then clear away all the pots, and consider the edging made. To fill up between the plants, peg the shoots right and left, and if effect is required as early as possible, take off the tops as soon as they are two inches long, remove the lower leaves, and dibble them in between the original plantings, and if this is done during rainy weather, the cuttings will be well rooted in ten or twelve days, and will never require shading at all. The *Golden Balm* will prove a fine subject for economical effect, but it must be properly managed, or it will disappoint all who take it in hand. This plant improves every season, and is really wasted unless adopted as a permanent edging, for it requires age to give it its true colour, and render it a rival to Golden Chain geranium. We should never have known the brilliant golden colouring of this hardy plant unless we had left some old stools untouched for several seasons, and with every return of summer felt a new surprise at the distinctness and purity of its colouring. But the beauty of this is all gone by the middle of July, and it then becomes coarse and weedy.

There are two admirable silvery plants in common use as edgings, but which are rarely left to fight it out with the winter. The charming *Cerastium tomentosum* is one of the most classical of promenade edgings we possess, and it is also the best of all cottage-garden plants, for if left alone it throws up myriads of pretty snow-white flowers in May, and makes a fine display while the true bedders are yet in a very embryo condition. This is so well known, that the mere mention of its name may suffice for the purpose now in view. It may be as well to add, however, that this is one of the best plants known for instantaneous bedding, for cuttings two or three inches long, planted without roots in the places where they are to remain, will soon root in showery weather, and if put out early will make a fine edging by the time the geraniums are tolerably well in bloom.

* See “Garden Oracle,” 1863.

They may, in fact, be put out at any time from April to August, and it is only necessary to plant them thick to secure instantaneous effect. The companion species, *C. Biebersteinii*, is more white and woolly, and of coarser growth, and by many will be preferred to our old friend, *C. tomentosa*.

The other of the two referred to is *Stachys lanata*, a plant with leaves an inch or less in width, and three inches long, which are covered with a dense clothing of grey hairs. Strictly speaking, it is a grey and not a silvery plant, and it is the least chaste and classical of all the edgings known. But for all that, it is of great importance as a first-rate poor man's bedding-plant, for one tuft may be divided and divided until there is enough to plant a park, and such a feat as that could be accomplished in less than a lifetime. But for a few hundred feet of it the trouble of propagating would be next to nothing, for it grows and spreads fast, and when the season is over may be left where it is; for it requires no shelter, and is as hardy as chickweed. *Stachys lanata* has been used for years past at Kew, as the best edging for scarlet geraniums; but it is not the best, and is here recommended for its hardiness, distinctness, cheapness, rapid growth, and interesting character, without attempting to compare it with more refined and more expensive subjects.

Many other plants are adapted for permanent edgings, and it may be useful to the amateur if we name a few, and give such brief hints as to their characters and uses as will convey an idea of their suitability to various purposes. *Festuca ovina glauca*, a pretty fine-leaved grass, with a distinct glaucous colour, makes a neat and rather unique edging, but is better adapted for edging a garden filled with curiosities than for a gay display of flowers. The common *Festuca ovina*, with green leaves, is also well adapted. Both these do best in poor sandy soil, but are really not particular. The first can only be obtained by dividing the plants; the second can be had from seed, which should be sown on a spare plot of ground, and the little tufts may be transplanted thence to their places close together in the line of the intended edging.

Lonicera brachypoda aurea, the variegated Japanese honeysuckle, makes a fine edging, if pegged and trained, and it might be planted fully a yard apart. *Saxifraga hypnoides* and *S. Icelandica* are beautiful edging plants, forming a close cushion-like spreading growth, of the most lively green, and usually preserving their lively colour all the winter. The variegated-leaved coltsfoot, *Tussilago furfara variegata*, may be adopted in a similar manner, and in chalky and sandy soils will winter as safely as any hardy plant known; but in damp loams there would be many losses in winter. As it is the most remarkable of all hardy variegated plants, it is well worth adoption, for it will compensate for losses by the rapid increase of the plants which survive the winter. Here, however, we are getting away from the idea of permanent edgings, which we are supposing to require very little attention beyond being properly planted in the first instance. *Vinca major elegantissima*, and *Vinca minor fol. var. aurea* and *argentea*, are three quite hardy plants, with the beauty of variegated geraniums, and a free, robust habit, which adapts them to the

most rustic or most refined of situations, where a bright and lasting edging may be required.

The following are capital edging plants, less generally useful, perhaps, than the foregoing, yet requiring enumeration here to give this article something like completeness:—*Acena nova Zelandica*, a small tufty hardy plant, like a cushion of moss, dotted with tufts of red drosera. *Antennaria tomentosa*, a pretty little woolly plant, hardy, and best adapted for dry sandy soil. *Saxifraga umbrosa*, the well-known "London pride," a most beautiful plant at any season. *Sedum acre fol. var.*, the golden-leaved stonecrop, well adapted for a dry, sunny place. *Sempervivum californicum*.—This is quite hardy, the leaves have bright brown points. If it grows out of order, it is very easy work to take up and replant it. *Sempervivum tectorum*.—The common houseleek. It makes a fine, bold edging. As for edgings in general, there are hundreds of plants suitable, but we have only now sought for such as may be planted to last for years, requiring no glass, and no particular skill to keep and cultivate them; and such as have been named above are undoubtedly the best.

S. H.

THE VILLA KITCHEN-GARDEN.—No. IX.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



CARROTS.—The first sowing of these very useful roots should be made about the beginning of March on a dry, warm, south border, and if sharp frost sets in, the seed bed should be protected with thatched hurdles, or some long dry litter from the stable, to be removed again immediately the weather is mild and open. The ground should be rich, and deeply dug, and the surface quite dry at the time of sowing. The best sorts for this early sowing are the *French Horn*, a small and sweet carrot; and the *Short Horn*, which is well known. All the crops of these roots should be sown in drills, one inch deep and twelve inches apart. The early sowing may be left very much thicker in the drills than those for the general crop, as being pulled in a young state, they do not attain the size of those required for the winter supply. They require careful hand weeding in the first stages of growth, until the plants become large enough to enable the cultivator to see the rows distinctly. When the drills can be seen from end to end, the Dutch hoe may be advantageously plied between them once a fortnight to keep down weeds, and to open the surface of the ground, especially if it has been battered down by heavy rain.

The principal crop should not be sown until the middle of April, and the best sorts for this purpose are the *Long Surrey* and *Altringham*. The first of these is the most elegant, the second the most profitable. Choose an open rich spot of ground that has been well pulverized by the action of frost and air during winter, and see that

the surface is sufficiently dry, that it will rake down into a nice fine condition. Draw the drills as recommended for the first crop, and mix the seed with some dry silver-sand, and rub both together through the hands. This process disentangles the seeds from one another, and enables the sower to distribute the seed more evenly along the drill. Fill in carefully with the back of a rake some of the finest of the soil, and leave the surface of the bed neat and nice. But do not aim at getting it into a fine powder; for if you do, the first shower will batter it into a paste, and it will remain impervious to the action of the air until its surface is broken up again with a rake or Dutch hoe.

Like the first crop they require to be hand-weeded until the rows are visible, after which ply the hoe constantly, and at the same time keep the weeds picked out in the drills. About the middle of June they will require thinning out; this should be done when the ground is moist, but not wet. To obtain fine clear roots, a distance of eight inches from plant to plant should be allowed. The after culture consists in keeping the ground occasionally hoed and free from weeds; and on a dry day about the middle of October dig them up carefully, cut off the leaves, and cleanse them from all dirt, and stow them away packed in some fine dry earth or sand away from damp and frost.

THE ONION.—No crop belonging to the kitchen-garden requires more care in the preparation of the ground than the onion, if we desire a profitable return for land and labour bestowed in cultivating them. A fine open spot, with three or four inches of rotten dung spread upon its surface early in November, and then well trenched up two spits deep, are the only sure means of securing a good crop. A spot of ground so prepared, and left to get pulverized by the action of the elements, will be in fine condition early in March, when it is time to sow the seed. After the 1st of March I always become anxious to get the seed into the ground, because it does not require so much heat to cause it to vegetate as the majority of kitchen-garden seeds, and the earlier we can get it above ground and established before summer, the better. The best sorts for general use are the *White Spanish* and *Brown Globe*. The seeds should be sown in drills two inches deep and one foot apart. Like the carrots, they want carefully hand-weeding at first, and then when well up, the Dutch hoe is the best instrument to keep down the weeds between the rows. As soon as they are three inches high, thin out to six inches apart. This is best done on a dull, damp day; and then, if there are any gaps, they can be made good by transplanting some of those taken out where they are thick.

The only summer culture they require is to keep them free from weeds, and make no attempt to create a vigorous growth by the application of stimulants in the way of manure or sewage-water, as it only tends to create a leafy succulent growth, rather robbing the bulb than adding to its size, and it will be sure to increase the number of long-necked bulbs. The onion will appreciate any amount of nourishment you may place in the soil previous to the seeds being sown, and will send down its roots to the depth of two feet if the

subsoil is kind and open. About the end of August they will show symptoms of ripening. This should be encouraged as much as possible by bending down the tops of any that are still green and vigorous. This process, which is called "laying over," is of great benefit to the crop, as the growth of the stem is thereby considerably checked, and the whole nourishment thrown into the bulb. They are consequently in a great degree compelled to ripen.

In growing onions for pickling, do not apply manure, but choose rather poor ground, and sow the seed very thick. Do not thin them at all, and they will ripen early, and be all of small size. The best sorts for this purpose are the *Covent Garden pickling* and the *Early Nocera*.

As soon as the majority of the bulbs have yellow leaves, which ought to be about the first or second week in September, pull them up, and let them remain upon the bed for a couple of days, after which cut away the leaves, and remove any dirt that may be about the base of the bulb, and then take them into an airy store-room when they are quite dry. Here they must be frequently examined, and those that are decaying must be removed.

BROCCOLIS IN SUCCESSION.

BY A MARKET GARDENER.



AT the request of the Editor I have written out a few particulars of the cultivation of broccoli, the result of half a century's practice. Everybody knows that broccoli requires a rich moist soil and careful cultivation. All the sowings of seed should be made in March, April, and May. They ought never to go into heat, but a private grower should not mind bringing on his early sowings in pans and boxes, and pricking them out on nice borders, on the surface of which there is spread an inch or two of powdery dung, for plants nursed on in this way make fine heads, and pay for all the trouble. Of course I speak now more particularly of the sorts sown for supply in autumn, as they are a less time on the ground than any others, and a little gain in the early stages of growing is a great profit in the end. As for the later kinds, good culture is all they want, and that they must have. Good culture consists in sowing on warm sheltered borders, pricking out as soon as large enough to handle, and finally planting with care, so that the plants are not bruised or broken in the operation.

The sowings in March ought to include Knight's Protecting, Dilcock's Bride, Lake's White, Early White, Old Sulphur, and Knight's Self-protecting. The sowings in April should include Early Penzance, Grange's Early, Snow's Winter, Early Purple, and Covent Garden White. The sowings in May should include another pinch of Early White, Dwarf Danish, and Grange's, also White

Walcheren, Pink Cape, Grange's Autumn, and Purple Cape. These thirteen sorts are the very utmost I should recommend for a cultivator who has to supply broccolis at all seasons in great plenty.

Where there is no occasion to grow them prodigally, I should sow true *Walcheren*, *Snow's Winter*, and *Grange's White* several times in April and May, and go on planting in succession, drawing always the largest plants, and leaving a few at proper distances in the seed-bed to flower.

In the first week of June I sow Grange's again, and *Early Penzance*, and deal with these in the same manner, and I would have heads for table nearly all the year round. *Somers' Particular Late White*, is a good sort to succeed the Walcherens, as it stands still till spring is far advanced, and then makes a sudden start, and comes in well during the early part, and in fact throughout the month of May, to keep things going till cauliflowers are ready. It is no use to hurry any broccoli into flower. It may be done by a starving process, such as planting out on a hot soil with little manure and no water; but when they are forced into flower, they are not worth having; in fact, the longer they are on the ground, provided they are doing well all the while, the finer they are in the end. Therefore give them room enough. The strong-growing kinds to come in late should be two to two and a half feet apart; those to stand the winter and flower in spring, fifteen to twenty inches apart. In well-sheltered places, I should prefer not to heel them over, but it is a good plan where they are likely to be exposed to cutting winds. The way to do it is to open a trench on the north side of every row, and then heel the plants over *with their heads to the north*. This prevents the too early action of the sun on their frozen leaves in winter, which is more destructive than frost itself. As for club and the black bott, I can only say that perpetual stirring and manuring of the ground tends more to prevent their ravages than any nostrums. Two things we find of inestimable value in the growth of broccoli, cauliflower, and, in fact, all the cabbage tribe—one is hot lime laid on as soon as the ground is cleared, and at once dug in; the other is manure in great plenty, and in a condition of rankness in which most private gardeners would be afraid to use it. But experience tells us that if rank manure is well dug in and mixed with the soil, the brassica tribe are quite capable of taking the rankness out of it without harm, and that rank manure is destructive of vermin; it, in fact, is a deadly poison to them. The black bott, or larva of the crane-fly, never can carry on its beastly depredations at the collar of the plant if there is plenty of strong dung in the soil; it can work through soot easier; and club is too much connected with a slow starving growth in the seed-bed to be favoured by strong manure. Market gardeners have no particular remedies against vermin; the reason they suffer but seldom from their ravages is that they are too active for vermin to get the upper hand. Why, if I see plants in a seed-bed falling over through being eaten through at the collar, I have a lot of hoes put to work to scratch the ground everywhere. This exposes the bott to view, and the robins and thrushes and sparrows make an end of them.

Supposing these instructions followed out, the cultivator may hope to cut in

January—*Snow's Winter* and *Early Penzance*.

February—*Snow's Winter*, *Early Penzance*, and *Covent Garden White*.

March—*Covent Garden White*, *Dwarf Danish*, *Early White*.

April—*Early White*, *Knight's Protecting*, *Dilcock's Bride*.

May—*Knight's Protecting*, *Sulphur*, *Somers' Particular*.

June—*Sulphur*, *Somers' Particular*, *Lake's White*.

July—If cool soils and shady positions can be found for a few breadths of *Lake's Superb White*, some good heads may be cut this month. I once cut a fine lot of *Basket's Late White* in July, the season happening to be cool and damp. But as broccolis are not wanted when cauliflowers are to be had, it does not seem to matter much about the supply this month.

August—*Walcheren* leads the way now, and wherever there is enough of it, no other is wanted while it lasts.

September—*Walcheren*, *Purple Cape*.

October—*Walcheren*, *Purple Cape*.

November—*Walcheren*, *Grange's Autumn*, *Grange's Early*.

December—*Walcheren*, *Snow's Winter*, *Grange's Early*, *Early Penzance*.

There are many other good sorts, such as *Cattell's Eclipse*, which is very fine, but grows too large for my taste; *William's Alexandra*, a most beautiful curd-like head; *Hill's June Broccoli*, one of the latest, but I do not think it can be relied upon; *Dancer's Pink* is fine if you can get it. *Conning's Reliance* comes in well in May, but is not hardy enough for cold soils.

SUBTROPICAL PLANTS THAT MAY BE GROWN FROM SEED.



OUR esteemed contributor, Mr. Karl Prosper, in his papers on plants for the "choice garden," in the issues of the FLORAL WORLD for 1866 and 1867, anticipated in great part the movement in which the trade have lately been engaged, for the supply of seeds of all the best of the subtropical plants adapted for the decoration of English gardens in the summer time. In every good catalogue we now find lists of these subjects, but undoubtedly the best list we have yet seen is that published by Messrs. Rollisson and Sons, of the Nurseries, Tooting, London, S. We have been expecting a paper from Mr. Prosper on the subject, but as it has not come to hand at the last moment for making up this number, we have transferred Messrs. Rollisson's list to these pages, fully satisfied that, however differently our various contributors might treat the subject, the readers of the FLORAL WORLD could not have a better selection, or more pithy and correct advices on their management. If those who are especially interested in this subject will refer back to Mr. Prosper's papers, the list which follows will be enhanced in usefulness.

"To judge from what has been seen in Battersea Park and elsewhere, in the way of subtropical plants for the garden, it is evident that a change is taking place in summer flower-gardening; plants with fine foliage and elegant appearance giving a tropical effect in the place where we have been accustomed to see a blaze of monotonous flower, and a sameness year after year. We give below a list of

plants which can be raised from seed ; many of the kinds, if sown in spring, will be fit for planting out and giving effect in the ensuing summer. Those marked * should be treated as half-hardy annuals or perennials, sown early in gentle heat, and grown on to plant out in the middle of May. There are a few that can be sown where they are to remain, and thinned out when too thickly grown. Those not marked should be sown in the autumn, and kept through the winter, so as to make good plants for planting out the following summer. We could have considerably enlarged the list by the addition of many useful plants, but the time that the majority would take to grow from seed, and the risk attending them before they would be fit objects for the subtropical garden, would cause the purchaser great disappointment in the object for which they were intended. It would be far better, where they are rather difficult and of slow growth, to purchase the plants already established."

HARDY AND HALF-HARDY ANNUALS AND BIENNIALS FOR THE SUBTROPICAL GARDEN.

* *Amaranthus bicolor*, foliage red and yellow. 2 ft. *A. tricolor*, ditto, ditto. 2 ft. * *A. melancholicus ruber*. Excellent for beds or masses, its rich foliage proving very effective. Can be kept low by pinching. 1½ ft. The one that is so much used for ribbon bordering and out-door planting in the summer months ; it succeeds much better than the other varieties for the flower garden.

* *Artemisia annua*. A very attractive annual, with ornamental foliage. 4 ft. * *A. sp.* (from St. Petersburg). This species surpasses the above ; it is of very rapid growth, pyramidal habit, and light green foliage.

Beta brasiliensis (Beet). Foliage very large and various coloured. Sow in open border. *B. cicla brasiliensis* (Beet). Very ornamental foliage, with white, crimson, and golden ribs.

Cannabis gigantea. Ornamental foliage. 4 ft. Sow in open border.

* *Carduus benedictus* syn. *Silybum marinum* (the Blessed Thistle). Very handsome plant, with beautiful mottled foliage. 6 ft. * *C. nigrescens*, large red flowers. 2 ft.

* *Carlina acanthifolia*, ornamental thistle. 2 ft.

* *Chenopodium atriplicis*, purplish crimson foliage. 4 ft.

* *Cleome arborea*, white flowers, handsome foliage. 6 ft. *C. speciosa*. *C. uniglandulosa*, crimson maroon, dwarf.

Cuphea eminens, fine species, scarlet and yellow flowers.

* *Datura fastuosa*, creamy white. 2 ft. *D. fastuosa* var. *flore alba*, double white. 2 ft. *D. var. flore alba violacea*, single, violet, creamy white centre. 2 ft. * *D. fastuosa* var. *flore alba violacea*, double, violet, creamy white centre. 2 ft. *D. humilis* syn. *Flava*, pale yellow, double. 2 ft. *D. métel*, pure white. 2 ft. *D. ceratocaula*, violet blue, with white throat. 1½ ft. *D. meteloides* syn. *Wrightii*, pale lilac. 2 ft. *D. atrovioleacea plenissima*, violet shaded, white throat. *D. Huberniana varietatis*. From the beautiful Huberniana, in which are many splendid colours. *D. gigantea*. A handsome variety in the way of *Ferox*. *D. humilis alba plena*, fine white variety. Very handsome ornamental plants, with beautiful long trumpet-shaped flowers ; many of the varieties are very handsome, the flowers being of great length and of various colours, giving a very agreeable scent.

Helianthus agrophyllus, yellow. *H. californicus*, yellow. *H. macrophyllus giganteus*, yellow. *H. uniflora giganteus*, yellow. Sunflowers ; some of the varieties grow to a great height, and are very attractive. 4 to 8 ft. Sow in open ground.

Humea elegans. A very graceful and ornamental plant. 4 ft.

Lupinus albo coccineus, white and rose. *L. arboreus*, white, blue, and rose. *L. Hartwegii*, and varieties of Hartwegii. 2 to 3 ft. *L. hybridus insignis*, puce, lilac, and yellow. 2 to 3 ft. *L. superbus*, red, brown, and yellow. 2 to 3 ft. *L. Moritzianus*. *L. mutabilis*, blue and yellow. 3 ft. *L. Cruickshankii*, blue and yellow. *L. varicolor*, various, 3 ft. Well-known annuals ; very ornamental ; suitable for the subtropical garden when planted out singly. Sow in open ground.

* *Nicotiana* (Tobacco). *N. sanguinea*. *N. atropurpurea grandiflora*. *N. Cuba*. *N. Cape*, enormous leaves. *N. Chiras*. *N. Havannah*. *N. long-leaved*. *N. Maryland*. *N. Salonichi*. *N. Ohio*. *N. Porto Rico*. *N. Amersport*.

The following new varieties of Tobacco are very handsome :—

Nicotiana atropurpurea grandiflora. A very handsome variety, with large foliage and rosy-purple flowers. 6 to 7 ft. *N. macrophylla gigantea*. A large growing variety, with immense foliage and purple flowers. 8 to 9 ft. *N. Wigandoides*. A large growing variety, with immense leaves.

The foliage of the Nicotianas is very ornamental, and the flowers of most of the varieties are very pretty; they are all worth growing in the subtropical garden. Height from 4 to 6 ft.

Papaver Mursellii.

Perilla nankinensis. Admirable for massing and ribbon bordering, where a deep mulberry foliage has a striking effect. 2 ft.

Polygonum orientalis (persicaria), flowers red. 6 ft. *P. fl. albo*, white, pretty foliage. Sow in open border.

Ricinus communis (Palma Christi) syn. Africanus, Tunicensis, glaucous white. 6 to 9 ft. *R. minor*. 4 ft. *R. Africanus albidus*, greenish white. 6 to 9 ft. *R. rutilans syn. lividus, purpureus*, reddish green. 6 to 9 ft. *R. sanguinea syn. Obermannii*, purple. 8 to 10 ft. *R. species*, from the Philippines, glaucous green; 8 to 10 feet. *R. borboniensis arboreus*. Said to grow 15 ft. *R. Belot Desfougeres*. The above list contains the principal varieties of Ricinus that are distinct in the foliage; there are a few other kinds, but they so much resemble those that we have given in the above list, that we think it would be useless to add them. The Ricinus can be classed as among the most attractive plants for the subtropical garden, the foliage being very large, and having an attractive appearance. Sow in gentle hotbed, repeat as the plant requires it, and plant out at the end of May.

Solanum sisymbriifolium syn. Balbisii, Decurrens, Viscosum. Leaves green, with yellowish green spines and large white flowers. 2 ft. *S. citrullifolium*. Handsome foliage, resembling a water-melon, and spiny, with rosy violet flowers. 3 ft. *S. laciniatum*. Beautiful green foliage. 7 ft. *S. ferrugineum*. Upper side of the leaves russetty green, the under side clear green. *S. marginatum syn. Abyssinicum*. Foliage bright green, margined with white and white flowers. 3 ft. *S. robustum*. Under sides of the leaves glaucous green, with white flowers. 2 to 3 ft. *S. pyracanthum*. Yellowish green foliage, with orange coloured spines down the veins of the leaves. Clear blue flowers striped with white, round yellow fruit. *S. giganteum syn. niveum*. Deep green foliage the under side silvery, white spines, and round red fruit. 4 ft. *S. sanguineum syn. atrosanguineum, atropurpureum*. Handsome green leaves with violet spines, yellowish green flowers, and yellow fruit. 3 to 5 ft. *S. dulcamara*. A handsome variety, with violet flowers and brilliant red fruit. 4 to 6 feet. *S. fontanesianum*. Elegant cut foliage, with canary yellow flower. 5 ft. *S. verbascifolium*. Oval lanceolate foliage of bushy growth. 3 ft. *S. acanthocarpum*. A splendid species, with deeply-lobed leaves, which are white underneath. It has remarkable spiny fruit, the size of a small orange. 7 to 8 ft. This is a very attractive and pleasing class of plants, very suitable for the subtropical garden; the foliage of many of the kinds is very handsome, with peculiar and variously coloured spines formed upon the upper and under sides of the leaves. The flowers of many of the varieties are very pretty, and most of them have very attractive fruit. The seed should be sown in brisk bottom-heat, and the plants grown in a stove or warm greenhouse heat, so as to plant them out about the end of May or early in June.

* *Zea Cuzko*. A giant Maize, growing to a great height, with broad foliage, very ornamental. *Z. Japonica foliis variegatis (Japanese Maize)*. A strikingly beautiful ornamental foliage plant, growing from 5 to 6 ft. The leaves are 2 to 3 inches broad, most beautifully striped with white; it was the admiration of every person who saw it growing last season in our grounds. *Z. Maize, or Indian Corn*. Very ornamental, suitable for the subtropical garden.

* *Zinnia*. 12 varieties, with double and single flowers; a fine bedding annual. 2 ft.

HALF-HARDY PERENNIALS FOR THE SUBTROPICAL GARDEN.

Abutilon, Duc de Malakoff, very beautiful foliage, pretty cream-coloured flowers with crimson stripe, 6 ft.

Artemesia argentea, pretty foliage similar to *Centaurea*.

* *Argyranthemum frutescens*, a greenhouse shrub with laciniated foliage. *A. coronopifolium*, very handsome foliage.

Bocconin cordata, *B. frutescens*, fine ornamental plants, with beautiful glaucous foliage. *B. cordata rotundifolia*, very fine glaucous foliage. *B. frutescens*, very ornamental, with splendid foliage. *B. Japonica*, a splendid species from Japan, with beautiful deeply sinuated foliage, said to be hardy, forming a bush 5 to 6 ft. high.

* *Centaurea argentea*, very handsome silver foliaged plant. * *C. Babylonica*, a handsome plant, producing a fine effect from its pyramidal habit, glaucous foliage, and rich golden flowers. *C. gymnocarpa*, very handsome silver foliage, similar to *argentea*, but the leaves are more deeply cut.

Coleus mollis, a pretty plant, with oval velvety leaves, and long racemes of bluish violet flowers.

Cineraria argentea vera, a pretty silver-leaved plant. *C. papyracea*, a species with very fine foliage. *C. plantanifolia*, very handsome glossy green foliage.

Chamæpeuce casabonæ, beautiful glossy dark green foliage, with white veins and brown spines, 4 ft. *C. diacantha*, very handsome foliage with white ribs and spines.

* *Canna* (*Indian Shot*).

We have given a list of the principal varieties of *Cannæ* in cultivation. Last summer we had an opportunity of inspecting the stock, when in perfection, of the largest grower of these plants on the Continent. There were many thousands of plants of each kind and colour, planted in separate sections; in the whole quantity there were not more than a score distinct varieties, and these constituted the principal kinds in cultivation. Lists of these plants have been compiled, giving from 100 to 150 varieties. These only tend to puzzle the purchaser, as the distinctions only exist in the name.

* *Canna annei*, glaucous, 6 ft. *C. annee*, green, veined with purple, 5 ft. *C. aurantiaca* *syn. aurea vittata*, pale green, 6 ft. *C. aurantiaca splendida*, green, 6 ft. *C. coccinea*, 3 ft. *C. compacta*, green, 4 ft. *C. galedoniensis*, green, 6 ft. *C. discolor*, green and purple, 5 ft. *C. edulis*, green shaded with reddish purple, 5 ft. *C. flaccida*, glaucous, 3 ft. *C. gigantea*, green, 6 ft. *C. grandis*, green, 7 ft. *C. iridiflora*, green, 7 ft. *C. involventifolia*, green, 5 ft. *C. indica*, green, 4 ft. *C. indica fol. aurea variegata*, green striped with yellow, 4 ft. *C. limbata*. *C. nepalensis*, pale green, 4 ft. *C. nigricans*, purple, 7 ft. *C. Peruviana*, green, 5 ft. *C. Porteana*, purple, 4 ft. *C. Van Houttei*, purple, 6 ft. *C. Warszewiczii*, green, tinted with purple, 6 ft. *C. zebrina*, purple, striped with green, 5 ft. *C. nana*, purple striped with green, 4 ft. Several other varieties. Highly ornamental perennial greenhouse plants with very handsome foliage, particularly adapted for massing in the subtropical garden, giving an elegant and tropical effect; can be easily raised from seed sown early in heat, and grown on and planted out in May. The seed should be soaked in warm water before sowing. From 4 to 6 ft.

Lobelia tupa, broad glaucous green foliage and long spikes of scarlet flowers.

Melianthus major, a beautiful cut-leaved plant, very ornamental. 2 ft.

* *Malva Californica*, a beautiful shrub, 3 to 4 ft. high, with handsome foliage and brilliant rose-coloured flowers.

* *Paratropia* (*Aralia*) *venulosa*, *P. tomentosa* *farinosa*, very handsome foliage plants.

Panax angustifolia, *P. aculeatum*, *P. dendroides*, *P. Murrayana*.

Santolina incana, pretty dwarf silver edging plant.

* *Sonchus machranthus*, *S. pinnatus*, ornamental plants with yellow flowers.

Ferdinandia minens, a fine plant of noble appearance, with striking broad foliage; one of the best plants for the sub-tropical garden.

Wigandia caracasana, a large-leaved plant, very effective. *W. urens*, *W. Vigerei*, a splendid acquisition for the subtropical garden, surpassing *W. caracasana* in beauty, the leaves being of a lively green, and glaucous underneath.

HERBACEOUS BIENNIALS AND PERENNIALS FOR THE SUBTROPICAL GARDEN.

Acanthus mollis, *A. spinosus*, handsome foliaged herbaceous plants with purple and white flowers. 3 ft.

Campanula pyramidalis, *C. fl. albo*, very beautiful and stately plants. 4 ft.

Digitalis canariense, *D. gloxiniflora*, *D. lanata*, *D. Lindleyana*, *D. lutea*,

D. nevidensis, *D. purpurea*, *D. purpurea alba*; *D. tomentosa*, a distinct hybrid with large erect flowers; colour deep red spotted with carmine. *And several other varieties*, very ornamental hardy herbaceous plants, with pretty flowers, some of the kinds beautifully spotted. Very fine for growing in shady situations, woodland walks, and under trees. 4 ft.

Dipsacus japonicus (Japanese Teasel), a plant with attractive foliage, of recent introduction.

Onopordon arabicum, an immense ornamental foliaged biennial with glaucous leaves.

Echinops spinosus, *E. binnatus*, Ornamental Globe Thistle, 4 ft.

Eryngium alpinum, *E. celestinum*, *E. planum*, *E. giganteum*, hardy herbaceous plants, with blue heads and ornamental foliage. 4 ft.

Ferula communis, a hardy herbaceous plant with very fine foliage.

Gunnera scabra, herbaceous plant with immense foliage, very attractive. 5 ft.

Heracleum giganteum, *H. sibericum*, *H. podagrarium*, very large foliage, but rather coarse; effective in the background of shrubberies.

Onopordon tauricum, Ornamental Thistle.

Pentstemon barbatus Torreyi, a remarkable vigorous-growing variety, attaining 7 ft. high, flowers of bright scarlet. *P. digitalis*.

Silybum eberneum (Elephant Thistle), very ornamental. 4 ft.

Stachys lanata, a dwarf hardy plant, with downy-looking silvery leaves.

Statice pseudo armeria, a perennial herbaceous plant with effective foliage and bright flowers.

Salvia argentea, very handsome silver foliaged plant. 3 ft. *S. chionantha*, wrinkled lanceolate foliage with large white flowers. 2 to 2½ ft.

NEWS FROM NORTH AMERICA.

SHIRLEY HIBBERD, DEAR SIR,—For ten years the FLORAL WORLD has been a monthly visitor to my *sanctum*. I need not tell you that it is always welcome, for had it not been, its visits would have ceased long ago. With this long acquaintance, through your writings, I cannot help feeling a kind regard for one to whom I am indebted for the means of passing many an hour so pleasantly.

In our comparatively new country floriculture receives far less attention than in England, but we are making rapid progress. Hundreds of thousands of dollars are now annually expended in beautifying the homes of our people, and there are now a hundred beautiful gardens where there was one ten years ago. In our more northern States the severity of our winters prevents the cultivation of many of the broad-leaved evergreens. The European hollies, laurel, and many of the rhododendrons are tender, still we have abundance of *kalmias*, native hollies, and rhododendrons, but these have not become as yet *fashionable*, therefore they are seldom employed. It will seem strange to an English gardener, although it's true, that so beautiful an evergreen as the *Kalmia latifolia* is seldom seen in an American garden, although they may be had in abundance merely for the trouble of transplanting. The same is true with the hardy azalea; our woods and neglected fields abound with them, of all colours, from the purest white to dark purple, still they are not appreciated by the masses; but far less beautiful varieties are annually imported at great expense, and cared for in proportion to their cost. But I did not intend to write you a lecture on gardening or our people, but merely wished to grasp hands with you across the great ocean, and say, God bless you, and speed the FLORAL WORLD.

If I can send you any notes on floriculture which would be acceptable, I shall be pleased to do so at command. If you have not received my scribblings on horticulture from the publishers, I shall be happy to send you a set of them if you will indicate how they shall be sent. I believe I have all of yours.—Yours fraternally,

A. S. FULLER.

Woodside Nursery, Ridgewood, Bergen Co., N. J., Jan. 27, 1868.

NEW PLANTS.



TANHOPEA EBURNEA, var. *SPECTABILIS*, Remarkable Ivory-flowered Stanhopea (*L'Illust. Hort.*, t. 531).—This splendid variety has been confounded in collections with *E. grandiflora* of Lindley, but it is quite distinct. The flowers are of great size, ivory white, with a greenish column, and a few spots on the lip.

CROTON VARIEGATUM, var. *MAXIMUM*, syn. *CROTON PANACHE*, Variegated Croton (*L'Illust. Hort.*, t. 534).—Euphorbiaceæ. A splendid variety of a well-known plant, obtained from the Solomon Islands by Mr. John Gould Veitch. It is of stately habit, the leaves large, and approaching to V-shaped, superbly coloured with golden bars on a deep green ground.

ZYGOPETALUM GAUTIERI (*L'Illust. Hort.*, t. 535).—Orchidaceæ. A beautiful new species from St. Catherine. It is of humble growth, the flowers on short racemes, sepals and petals of equal width, green, with purple spots, lip large, blush white on the expanded limb, deep purple at the base. One of the most beautiful of this genus.

CRATEGUS OXYCANTHA, var. *FLORIBUS COCCINEIS PLENIS*, Double Scarlet-flowering Thorn (*L'Illust. Hort.*, t. 536).—Pomaceæ. This is one of the finest hardy trees in cultivation, producing an abundance of large double flowers of a deep scarlet-red colour. It was exhibited at the London shows by Messrs. Paul and Son, of Cheshunt, in the summer of 1867.

QUERCUS ROBUR, var. *CONCORDIA*, Golden-leaved Oak (*L'Illust. Hort.*, t. 537).—Cupuliferæ. A beautiful variety of the common oak, the leaves being deep orange and yellow, and the young stems of a reddish hue.

CATTLEYA AMETHYSTOGLOSSA (*L'Illust. Hort.*, t. 538).—A good figure of this well-known magnificent orchid.

CAMELLIA MATTEO MALFINO (*L'Illust. Hort.*, t. 539).—A fine symmetrical flower, regularly imbricated, the petals of a fine cerise red, with stripe of white down the centre.

LILIUM LEICHTLINI (*L'Illust. Hort.* t. 540).—Liliaceæ. A graceful habited lily in the way of *L. tigrinum*; the flowers are yellow, with brown spots.

EPIDENDRUM ATROPURPUREUM, var. *ROSEUM* (*L'Illust. Hort.*, t. 541).—Orchidaceæ. A beautiful variety of a well-known orchid; it differs from the species in the colour of the lip, which is rosy.

MARANTA BARAQUINI (*L'Illust. Hort.*, t. 542).—Marantaceæ. A stove plant of neat dwarf habit, the leaves ovate, lanceolate, with dark line of green in the centre and dark green margin, the intermediate spaces delicate grey, with green lines.

POMPON CHRYSANTHEMUMS, Continental varieties (*L'Illust. Hort.*, t. 543).—
1. *Madame le Baronne d'Utinbert*, medium size, rosy with whitish centre. 2. *Fibreto*, medium size, pale yellow. 3. *Madame de Sebatier*, large delicate rosy blush. 4. *M. de Soulages*, medium size, very neat, colour fine deep brownish crimson, first-rate. 5. *Madame la Comtesse de Mons*, rather large, soft rose shading to white. 6. *Atilla*, very small, red, with yellowish or brassy centre. 7. *Mr. Astie*, medium size, rough, dark red, and brassy. Nos. 3 and 5 we can recommend, but not the others.

CATTLEYA AMETHYSTOGLOSSA, *Amethyst-lipped Cattleya* (*Bot. Mag.*, t. 5683).—Orchidaceæ. A magnificent orchid, believed to be a native of Brazil. It is allied to *C. granulosa* and *C. guttata*, but is distinct from both. Mr. Warner describes



STANHOPEA EBURNEA.

it as flowering in May and June, but Dr. Hooker speaks of it as flowering in February last year. The rhizome is woody, the stems two to three feet high, leaves six to eight inches long, scape erect, two to four inches high; flowers in a corymb, perianth white, suffused with rose purple, four inches in diameter. A magnificent species for exhibiting.

VITIS PLANICAULIS, *Flat-stemmed Vine* (*Bot. Mag.*, t. 5685).—Ampelidææ. "This is one of those curious tropical forms of the genus *Vitis* that form enormous lianas in the forests of the torrid zone, and attract the attention of every traveller by their remarkable characters; in the present plant it is the structure of the stem and its enormous size that form its most conspicuous features. The trunk is eighteen inches broad by one and a half inch thick at the base; the leaves are large; flowers green; fruit as large as the thumb nail."

OPHELIA ALATA, *Winged Ophelia*.

OPHELIA ANGUSTIFOLIA, *Narrow-leaved Ophelia*, *Ophelia paniculata*, *Panicled Ophelia* (*Bot. Mag.*, t. 5687).—Gentianacææ. A series of charming annual plants, natives of the colder regions of the Himalaya. They are of neat, elegant character, sparsely leafy, the leaves narrow or linear, except in *alata*, which has ovate cordate leaves; the flowers in loose cymes of small size, those of *alata* greenish yellow; those of *angustifolia* rosy pink; those of *paniculata* white with purple stamens.

TRICHOCESTRUM ALBO-PURPUREUM (*Bot. Mag.*, t. 5688).—Orchidacææ. A pretty little orchid allied to *Burlingtonia*; the flowers are produced singly, they are of a fine maroon colour, the lip white with purple spots.

ODONTOGLOSSUM ALEXANDRÆ, var. *TRIANÆ*, *Dr. Triana's variety of Princess of Wales's Odontoglot* (*Bot. Mag.*, t. 5691).—A lovely variety of one of the most precious botanical acquisitions of modern times. The flowers are white, with spots and bands of delicate rose colour.

STAPELIA PLANTI, *Mr. Plant's Stapelia* (*Bot. Mag.*, t. 5692).—Asclepiadacææ. A handsome species of a genus that has never been in good repute, especially with those cultivators who object to the putrid meat-like odour which is exhaled from the flowers. The flowers are beautifully marked with yellow and blackish purple lines, and boldly margined with blackish purple.

ANTHURIUM SCHERZERIANUM.—This beautiful plant was described at page 247 of the volume for 1866. We again call attention to it, and present an outline figure for the purpose of recommending all who can command stove heat to cultivate it. All that it requires may be stated in a few words. A steady heat of 60° is sufficient to begin with in the spring, and at first very little water should be given. By degrees the heat may rise to 70°, with an increase of water, and as the plants become vigorous a temperature of 80° will suit them with an abundance of water. Sandy peat has usually been employed in the cultivation of this plant; but we find a fat, turfy loam of a yellow colour and a silky texture to answer admirably, and in the first potting of the plants we mix with it plenty of sand. A most effective way of growing the plant is in shallow pans, as the brilliant scarlet spathes intermixed with the dark green oblong leaves are seen to greater advantage in a large mass than when the plants are grown singly in pots, and five or six inches depth of earth is quite sufficient. There are few, even amongst the finest stove plants, that can equal in splendour *Anthurium Scherzerianum*.



ANTHURIUM SCHERZERIANUM.

Anthurium Scherzerianum.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF BROCCOLI FOR GARDEN CULTURE.

Purple Cape, Grange's White, Walcheren, Snow's Winter White, and Purple Sprouting; Cattell's Eclipse. These are enough for all ordinary families; and Walcheren may be sown frequently for succession.

A SELECTION OF VARIETIES OF CABBAGE FOR GARDEN CULTURE.

Atkins's Matchless, small; Dwarf Early York, small and quick; Cattell's Reliance, suitable to sow from March to August, and to cut at all seasons; West Ham, for fields and large gardens; Fearnought, fine for spring use, very hardy; Little Pixie, very early, dwarf and sweet; Sutton's Imperial; Green Curled Savoy—last two fine for autumn sowing; with the London Colewort.

A SELECTION OF CAULIFLOWER FOR GARDEN CULTURE.

Early London may be sown spring and autumn; Large Asiatic comes in late and fine; Lenormand, for autumn sowing only.

Best for forcing.—Frogmore Early and Wellington.

A SELECTION OF VARIETIES OF CELERY FOR GARDEN CULTURE.

The best flavoured are the red kinds, of which Hood's Imperial, and Manchester Champion are the best. The best flavoured white is Sandringham; best for production, Northumberland Champion.

A SELECTION OF VARIETIES OF CUCUMBER FOR GARDEN CULTURE.

For frames and houses for summer use.—Dr. Livingstone, Empress Eugenie, Kirklees Hall Defiance, Star of the West.

For open ground.—Henderson's A 1 Ridge, and common Gherkin for pickling.

For winter fruiting.—Rollisson's Telegraph, the best of all for winter, and first-rate in every season; Highland Mary, Kenyon's Favourite.

A SELECTION OF VARIETIES OF LETTUCE FOR GARDEN CULTURE.

Best Cabbage Lettuces.—Early White Spring, White Tennis Ball, Stone Tennis, Neapolitan, Stonehead Frame, Crisp German.

Best Cos Lettuces.—Florence, Paris.

Varieties especially adapted for hot climates and dry soils.—Batavian Brown Cabbage, Blood Red Cabbage, Coquille.

Varieties lasting longest after attaining perfection.—Berlin White, Brunzul, Crisp German, Brumhead, Early White Spring, Large Red Cabbage, Neapolitan, Normandy, Royal White Summer, Spotted Red Cabbage, Stonehead Frame, Spotted White Cabbage, Florence Cos, Red Cos.

A SELECTION OF VARIETIES OF ONIONS FOR GARDEN CULTURE.

For early use and pickling.—Silver Skin and Early Nocera.

For general crop.—Nuneham Park, Reading, and James's Keeping.

BEST VARIETIES OF TURNIPS FOR GARDEN CULTURE.

Early Dutch, Veitch's Red Topped Stone, Nonsuch.

The best for sowing in autumn are Jersey Navet and Orange Jelly.

A SELECTION OF HARDY PERENNIALS NOT SUFFICIENTLY GROWN.

We have ere now taken some pains to select the finer hardy herbaceous plants, but, taking the very best, we were of course obliged to name many of the most popular—many that “everybody” may be said to grow. However our previous selections may have suited those who cultivated none or but few of the finer hardy plants, it is clear that the gathering together of the species well worthy of culture, yet rare or comparatively so, will meet the wants of a more experienced class of growers, while also useful to the novice. This we now furnish in a rather extensive list, selecting none but those that we know to be in cultivation in the British Islands, and therefore procurable. Lists of plants not in cultivation are useless.

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| 1. <i>Anemone alba</i> . | 53. <i>Pentstemon venustus</i> . |
| 2. — <i>Pavolina</i> . | 54. — <i>procerus</i> . |
| 3. — <i>fulgens</i> . | 55. <i>Vicia argentea</i> . |
| 4. — <i>sylvestris</i> . | 56. <i>Iris Kämpferi</i> . |
| 5. <i>Aquilegia cærulea</i> . | 57. — <i>nudicaulis</i> . |
| 6. — <i>glandulosa</i> . | 58. <i>Carpesium Richei</i> . |
| 7. <i>Trollius napellifolius</i> . | 59. <i>Commelina cælestis</i> . |
| 8. <i>Ranunculus acronitifolius plena</i> . | 60. <i>Cypripedium spectabile</i> . |
| 9. — <i>acris plena</i> . | 61. <i>Dracocephalum grandiflorum</i> . |
| 10. — <i>amplexicaulis</i> . | 62. <i>Lithospermum fruticosum</i> . |
| 11. — <i>bullatus plena</i> . | 63. <i>Linum flavum</i> . The true plant is hardy and herbaceous. |
| 12. <i>Helleborus olympicus</i> . | 64. <i>Lobelia Tupa</i> . |
| 13. — <i>atro-rubens</i> . | 65. <i>Michauxia campanuloides</i> . |
| 14. <i>Pæonia tenuifolia pl.</i> | 66. <i>Ononis spinosus albiflorus</i> . |
| 15. <i>Hepatica angulosa</i> . | 67. <i>Phygelius capensis</i> . |
| 16. <i>Epimedium macranthum</i> . | 68. <i>Spigelia marilandica</i> (in moist peat). |
| 17. — <i>pinnatum elegans</i> . | 69. <i>Rhexia virginica</i> (ditto). |
| 18. <i>Corydalis nobilis</i> . | 70. <i>Symphytum bohemicum</i> . |
| 19. <i>Dielytra formosa</i> . | 71. <i>Thalictrum foetidum</i> . |
| 20. <i>Thermopsis fabacea</i> . | 72. <i>Verbascum vernale</i> . |
| 21. <i>Coronilla montana</i> . | 73. <i>Veronica taurica</i> . |
| 22. <i>Lathyrus Sibthorpi</i> . | 74. — <i>corymbosa</i> . |
| 23. — <i>californicus</i> . | 75. — <i>amethystina</i> . |
| 24. <i>Orobus flaccidus</i> . | 76. <i>Zauschneria californica</i> . |
| 25. — <i>angustifolius</i> . | 77. <i>Hibiscus roseus</i> . |
| 26. — <i>roseus</i> . | 78. <i>Chrysobactron Hookeri</i> . |
| 27. <i>Aster elegans</i> . | 79. <i>Malva campanulata</i> . |
| 28. — <i>grandiflorus</i> (for sunny walls). | 80. <i>Ferula neapolitana</i> . |
| 29. — <i>turbinellus</i> . | 81. <i>Sedum spectabile</i> . |
| 30. — <i>lævis</i> . | 82. <i>Silene pennsylvanica</i> . |
| 31. — <i>pyrenæus</i> . | 83. <i>Rudbeckia Newmanni</i> . |
| 32. — <i>versicolor</i> . | 84. <i>Liatris spicata</i> . |
| 33. <i>Echinacea angustifolia</i> . | 85. — <i>elegans</i> . |
| 34. <i>Echinops Ritro</i> . | 86. <i>Erodium Manescavi</i> . |
| 35. — <i>ruthenicus</i> . | 87. <i>Iberis Tenoreana</i> (for light sandy soils). |
| 36. <i>Pyrethrum uliginosum</i> . | 88. <i>Chelidonium japonicum</i> . |
| 37. <i>Platycodon autumnale</i> . | 89. <i>Sympiandra pendula</i> . |
| 38. <i>Gentiana Andrewsii</i> . | 90. <i>Armeria cephalotes</i> . |
| 39. — <i>ciliata</i> . | 91. <i>Astragalus vaginatus</i> . |
| 40. <i>Calystegia dahurica</i> . | 92. — <i>monspeulanus</i> . |
| 41. <i>Convolvulus lineatus</i> . | 93. <i>Melissa grandiflora</i> . |
| 42. <i>Morina longifolia</i> . | 94. <i>Oenothera missouriensis</i> . |
| 43. <i>Scabiosa caucasica</i> . | 95. — <i>speciosa</i> . |
| 44. <i>Eryngium amethystinum</i> . | 96. — <i>anisoloba</i> . |
| 45. — <i>Bourgati</i> . | 97. <i>Podophyllum Emodi</i> . |
| 46. — <i>cæruleum</i> . | 98. <i>Geum chilense</i> . |
| 47. <i>Statice eximia</i> . | 99. <i>Symphytum caucasicum</i> . |
| 48. — <i>tatarica</i> . | 100. <i>Trillium grandiflorum</i> . |
| 49. <i>Dodecatheon Jeffreyanum</i> . | |
| 50. <i>Acanthus spinosissimus</i> . | |
| 51. <i>Phlomis Herba-Venti</i> . | |
| 52. <i>Polygonum Sieboldi</i> . | |

GARDEN GUIDE FOR MARCH.

Kitchen Garden.—The work of this month will in great measure determine the quantity and quality of the crops in the kitchen garden all the season through, therefore it should be well done, and *in good time*, so far as weather will allow. Seeds of all the hardy subjects may be sown, such as peas, beans, cabbages, saladings, lettuces, etc. The earliest possible opportunity must be taken to sow a little celery, capsicum, tomato, vegetable marrow, and other subjects that require to be forwarded under glass. Where there is plenty of convenience, it is a good plan to sow early London cauliflower under glass now, and push the plants along gently; as they will come in useful in the latter part of the summer and early in autumn, if planted out on rich land.

Flower Garden.—Hardy annuals sown now will flower almost as early as those sown in February. Hardy herbaceous plants and roses may be planted; but it is late for planting standard roses, and too early to plant dwarf roses that have been wintered in pots under glass. Next month will be time enough for them. Roses must be forward now, except in very exposed districts, where it would be well to wait till the beginning of next month.

Greenhouse and Conservatory.—One of the most important items of this month's work is to prune and repot (if required) pelargoniums of all kinds, and especially the zonal kinds. Such as have been in the same pots for a year or more should now be carefully pruned, and a week or ten days afterwards should be turned out and be repotted with fresh soil, consisting in great part of good loam and leaf-mould with about a fifth part added of well-rotted manure. A great many good greenhouse plants will be in bloom now, and must not suffer for want of water. Secure as much light in the houses as possible, by removing every obstruction; clean the glass within and without, if needful; within it is sure to need it, but the outside gets pretty well cleansed with rain.

For full particulars of the work of the season, we refer to past volumes of the *FLORAL WORLD*, and to the *GARDEN ORACLE* for 1868.

 TO CORRESPONDENTS.

PROPAGATING VERBENAS AND CALCEOLARIAS.—*R. W. B.*—As we cannot write an essay in reply to a question of this kind, we must direct attention to a few important points. The condition of the plants to be cut from, and the nature of the cuttings, are matters of the very first importance. Many beginners fail through taking old hard shoots of the previous year, which none but a professional propagator could strike. First, then, get the plants into a nice free growth bristling with young shoots, and when these shoots are an inch and a half to two inches long, remove them by cutting close under a joint; take the leaves from that joint, and dibble them into pans of silver-sand close together and quite firm, pressing the sand between them with the finger. Never trifle with a batch of nice fresh cuttings. Give them heat enough—65° to 70°; dew them frequently, and keep them close. Remember, the more heat, the more moisture, and *vice versâ*. If any mildew appears, sprinkle dry peat-dust among the cuttings, and raise the heat. They ought to be well rooted in ten days, but beginners may reckon on getting roots in a fortnight. Calceolarias may be rooted in a lower temperature than required by verbenas—in fact, they may be rooted without the aid of artificial heat, if kept close and damp. The most certain and easy way to get up a spring stock of calceolarias is to use frames or boxes which can be covered close with glass; place these on a mild hotbed, and over the dung spread a foot depth of cocoa-nut refuse, or clean moss or peat; water it well, and dibble the cuttings in firm three inches apart all over. Cuttings of two joints will be enough, especially if from nice soft shoots of plants growing freely. They will every one root, and will require to be pretty freely aired from the time they begin to grow, and by planting-out time they will be stocky plants, touching each other all over the bed. But they will never equal plants struck in autumn. If calceolaria cuttings are taken from large old plants, the propagator must be careful to avoid those shoots which are pushing for bloom, and which may be known by the extra length of the wood between the joints.

SCHYZOSTILUS COCCINEA.—*H. J. Hoskins.*—We are quite glad you have made inquiries about this fine plant, as we have paid especial attention to it since it was introduced by Messrs. Backhouse. It does not do well in pots; it requires a free soil, and is, therefore, best treated as a hardy border plant. We have grown it and flowered it in pots by the hundred, in order to keep our plunging system going late in the year, but it did not perfectly answer. We observe also that in merely multiplying for stock, potted plants are apt to acquire a poor appearance, the leaves becoming brown at the points. Then if the plants are left out, and treated as hardy, they seldom show their proper beauty, for the flowers begin to open just as the frosts and fogs of winter begin to wage war with all vegetable beauty. Now, having grown the plant all sorts of ways, the method we now follow as attended with the minimum of trouble and the maximum of advantages is as follows:—The bulbs are planted out in an open border of light rich soil, plenty of sand and leaf-mould being used; but any ordinary good soil will serve the purpose. The plants should be allowed to grow until the flower buds begin to rise above the leaves, and then should be taken up and potted, and put in a rather warm house to open the flowers. An unheated house will do, but a little warmth is desirable. By this course of treatment a quite hardy plant which does not open its flowers well in the open air, becomes one of the best of indoor winter-flowering subjects, and that with the least imaginable trouble. We never pot them until the flower spikes are visible, because some of the tufts require two years growing before they are worth potting. That it is well worth this little trouble none who know it need be told, but those who have not made acquaintance with the plant would do well to take it in hand according to this prescription, for the sake of its beautiful scarlet flowers in winter.

VENETIAN CREEPER.—I should be much obliged if you would tell me in the March number of the *FLORAL WORLD* whether there is an evergreen creeper called "Venetian Creeper," which bears a small light coloured yellow flower, somewhat like elder flower. It attaches itself to walls by means of spurs or tendrils thrown out from the back of the stem, at the ends of which are small claws. The stem thus stands out from the wall instead of clinging to it like ivy. I was told of it by an amateur gardener. We cannot hear of it at any of the great nurseries.—*Pang urname.* [We cannot imagine what plant (if any plant) is properly known as "Venetian creeper." Surely there must be some confusion arising out of a mistake in description, and a mistake in name. Let us suppose the description of the flowers to be erroneous, and that instead of being white, like elder flowers, they are green like grape vine flowers. Then suppose a mistake in name, and instead of "Venetian," this is *Virginian creeper*. Such, at least, we suppose it to be; and if so, the plant can be obtained at the nearest nursery, no matter where our correspondent dwells.

SENSATION CHRYSANTHEMUM.—*H. J. K.*—Very few people have seen the flowers of this, owing to the extensive manner in which it has been propagated. It is, however, rather shy in flowering. If you wish to flower it next year, grow a few plants liberally, and begin at once, and all through the season do not take a single cutting from them. Being white, the flowers do not look well amidst its variegated leaves, so as a matter of taste it is scarcely worth flowering. We do not know Sir Walter Scott rhododendron. It is most likely a hardy one, and would do better in a peat-bed out of doors than in a pot.

BOOKS AND CATALOGUES.—Enquiries having been made for Mr. Hibberd's new work on "Beautiful-leaved Plants," it is necessary to say that it is being issued in monthly parts at 1s. each by Messrs. Bell and Daldy, York Street, Covent Garden. Three parts are now ready, comprising figures and descriptions of the following subjects:—*Maranta vittata*, *Saxifraga Fortunei*, *Begonia Dædalea*, *Eranthemum sanguinolentum*, *Hypoestes sanguinolenta*, *Maranta rosea-picta*, *Dieffenbachia Barquiniana*, *Gymnostachyum Verschaffelti*, *Caladium macrophyllum*, *Dracæna terminalis*. The following seed and nursery firms have sent their catalogues for 1868:—Messrs. Sutton and Sons, Reading; Messrs. Cutbush and Sons, Highgate; Messrs. Rollisson and Sons, Tooting; Mr. B. S. Williams, Holloway; Messrs. Barr and Sugden, King Street, Covent Garden; Mr. Pierpont, Bridge Street, Warrington; Mr. Bull, King's Road, Chelsea; Messrs. Veitch and Son, King's Road, Chelsea; Messrs. Downie, Laird, and Laing, Stanstead Park, Forest Hill, and Frederick Street, Edinburgh; Messrs. E. G. Henderson and Son, Wellington Road, St. John's Wood.



Canna Warszewiczii.

Ricinus communis.

Helianthus argophyllus.

Caladium esculentum.

SUBTROPICAL GARDENING.

THE FLORAL WORLD

AND

GARDEN GUIDE.

APRIL, 1868.

ROUGH AND READY GARDENING.—NO. III.

A CHEAP DISPLAY OF SUBTROPICAL PLANTS.



LET us at least be in the fashion, even if we do things cheap. The "subtropical movement," as it is called, is a healthy protest against the monotonous *flat colouring*, the ever-recurring carpet design, against which the FLORAL WORLD has constantly raised its voice, and laboured for its correction. So we must take the subtropical into our series of "rough and ready;" but we would not do so, unless, besides walking with the fashion, we might also promote a sound judgment and good taste. We want no better justification for placing the subject third in the series, than this, that in the subtropical department we shall find a number of magnificent plants well adapted for the embellishment of English gardens, and these may be grown on rough and ready principles. Does the reader expect to be told that a stove, a range of pits, and other costly contrivances, will be required to begin with? We give the reader at once whatever comfort he or she may need on that score, by saying that we shall now take a new view of the subtropical business, and recommend things that may be grown about as easily as scarlet runners. In doing so, we shall make public a few "things not generally known;" and if this paper does not prove to the majority of our readers worth more than the cost of the number containing it, we shall be disappointed as much as anybody with it.

Let it be understood at starting, that we cannot prescribe on matters of taste with any great advantage here. We do not pretend to say that so many of this and so many of that must be grown, and they must be disposed of in such and such a manner. Nothing of the sort. We shall make only a few general remarks on that part of the subject. In the first place, then, in every garden where ordinary bedding plants are employed, the subtropicals may be mixed with them; and if the mixture is judiciously accomplished, the effect will be incomparably rich as compared with carpet colour-

ing, and the entertainment to be derived from the view of the planting will be higher and more acceptable to a reflective mind. We cannot very well be losers by the introduction to our gardens of more noble forms of vegetation than we have been accustomed to heretofore. Another important point for consideration is, that very few of these subjects will produce an effect early in the season; they are mostly autumnal plants, requiring time for the development of their characters. This consideration is of more importance to the rough and ready gardener than to those who have means of propagating and growing the plants from an early period of the year, and who therefore can plant them out in a forward state at the very same time, or very soon after the time, when the rough and ready practitioner makes a beginning. But we shall recommend nothing, either in the way of selection or practice, that may not be relied upon to give full remuneration for the attention bestowed. We shall first take Messrs. Barr and Sugden's catalogue, and make out a list of seeds that should be purchased at once, and be sown where the plants are to remain.

Artemisia Japonica, *A. nova species*, from St. Petersburg, *A. annua*, three fine species of ornamental foliage plants, suitable to form large clumps, or for conspicuous places in the raised border. Sow in April, an inch deep, and thin the plants when up, as they require it, allowing plenty of room for development.

Beet.—At page 59 of the catalogue, a *crimson-leaved beet* is offered as "selected purposely for the flower-garden." It has a close, neat habit, producing abundance of small deep crimson leaves. If required to form a ribbon row on a bed or circle, have the ground dug deeply at once, and left quite rough, but not manured. About the 20th of April level the ground, make the surface fine, and sow the seeds three inches apart. When the plants are fairly up and advancing, thin them to six inches apart, and they will soon afterwards cover the ground, and have a rich appearance. In the autumn take them up, select the best roots, and store them in sand to cook for salads; give the wiry and ill-shaped roots to somebody's pig or cow. If you want another beet suitable for ornamental purposes, obtain the *Suffolk Red Beet* from Messrs. Wheeler and Son, of Gloucester.

Beta chiliensis is the grandest plant of the kind known. It is, in fact, wonderful, the leaves rising two or three feet high, and the colours brilliant beyond conception, varying from fiery orange to glowing carmine, and thence deepening to a blackish crimson. This can only be obtained of Mr. Salter, Hammersmith, at 2s. 6d. a packet. It would make a gorgeous bed, and a few plants in conspicuous places in a sunny border would have a glorious appearance.

Canna.—We recommend the rough and ready gardener not to buy seed of these; for unless they are grown in heat and got forward to a good size by the end of May, they will not flower the first season. But there is another mode of procedure. Prepare a large bed in a position where a mass of gorgeous leafage crowned with scarlet flowers would be appropriate, and let the position be well drained and sheltered from the north. Have the ground broken up

very deep, and liberally manured, within a few days after reading this, and at the end of the month plant it with roots of *Canna limbata*, six inches deep and two feet apart. When the planting is finished, sow all over the bed mignonette, or balsams, or any good annual. The first season the cannas will make a free growth, and flower well, and the annuals will fill in and enrich the bed. You are not to take up the cannas in autumn, but let them remain in the ground, laying on the bed in November a foot depth of long stable manure, or if the position will not allow of anything so unsightly, cover it with a foot depth of cocoa-nut fibre. At the end of April the next season, draw this off, and soon after the cannas will begin to push through. Annuals are not to be sown after the first season, as the cannas will choke them. Every year these cannas will become stronger, the winters will not harm them; the bed will be one of the grandest and cheapest ever planted. We believe that all kinds of cannas might be treated in the same way; but *we know*, by five years' observation of a bed so treated, that *limbata* may be considered a hardy plant.

Helianthus argophyllus may be sown any time in April where it is to remain. It forms a freely-branching plant, with silvery leaves and smallish yellow flowers of the sunflower type, averaging five feet high. *H. macrophyllus giganteus* is the largest and tallest sunflower known, and suitable only for the shrubbery, or for the neighbourhood of half-wild water scenes.

Heracleum giganteum and *H. eminens* are magnificent plants for just the same purposes as the gigantic sunflower, and both like a wet soil. Sow the seed early in April in pots, and place the pots in a frame. Plant out when large enough.

Magydaris tomentosa, a grand plant for the same purposes as the two subjects last named.

Nicotiana macrophylla, *N. purpurea*, *N. glauca*, and *N. virginiana*, are four of the finest of tobaccos for ornamental purposes, but a packet of mixed seed will give greater variety. It is not generally known that the tobacco may be grown as a hardy annual, but such is the fact; and we have but to sow the seed on ground that has been well dug and manured, and made rather fine, and in due time the plants will appear and grow freely. Several of the species of *Nicotiana* have in our garden become weeds, appearing annually from self-sown seeds.

Ricinus communis.—Very few practical gardeners are aware of the fact that the seeds of castor oil plants sown in the open ground at the end of April make plants which very nearly equal, as the summer advances, those that were raised in heat, and treated with the greatest care. It almost always happens, that after being planted out, these plants are subjected to a trying check, by reason of cold weather; now those sown in the open ground do not suffer a check, for they are scarcely above ground until the summer is fairly set in; and they sometimes overtake in their rapid growth those that have had two or three months' start of them, but have suffered through being too soon exposed to the weather. If a little trouble is not objected to, the growth may be hastened by sowing the seeds

singly in small pots, and placing these in a frame in a sunny place, or on a greenhouse shelf, or in a warm, sunny window. When the plants are large enough, and the weather is *warm and still*, plant them out without damaging or disturbing a single root. The best sorts are *Bourbonensis*, *macrocarpus*, *Obermannii*, *sanguineus*, and *giganteus*. A packet of mixed seed will afford a good variety.

Solanums are of no use on the rough and ready system; they require good culture in their early stages, before being planted out.

Statice latifolia is a fine large-leaved hardy plant, which may be grown from seed. But if only a few are wanted, it is best to buy plants.

Cucurbits.—Where there are blanks and half-wild places to be covered, several of the Cucurbits may be grown to advantage; still, from our present point of view they are somewhat apocryphal. We should be inclined, if pledged to rough and ready methods, to grow on banks, mounds, and half-wild places none but edible gourds; and we should, if so actuated, sow about the end of April or first week in May, *Hibberd's Prolific Early Marrow* (page 62), for the sake of frequent dishes of delicious little marrows, and the following for ornament:—*Echinocystis lobata*, *Gronovea Humboldtiana*, *Momordica pterocarpa*, and *Trichosanthes cucumerina*. Of the large useful edible gourds, the most handsome are, *Turk's Cap*, *Sicilian*, and *Zebra*.

Potato.—A variety called *Chardon* grows in the form of a bush, and produces an abundance of beautiful blue flowers. Planted in shrubby borders, or in large beds, it has a good effect, and the roots are fair second-rate potatoes. In a small garden it is useless, and in a large garden it is quite unfit for the parterre.

Zea.—All the varieties of maize, or Indian corn, may be sown in the open ground, and will do well. The way to sow them is in clumps of five to ten seeds in a clump, the seeds a foot apart and five inches deep. If so sown on good ground, they grow to as fine proportions and fruit as freely as if pushed on in heat, and planted out in the usual way. The finest varieties are *Z. Japonica variegata*, with beautiful striped leaves equal to the variegated *Arundo donax*. *Z. cuzco*, a gigantic species, fifteen to twenty feet high; the seeds are as large as beans, and a ripe cob of fruit is like a bludgeon. *Z. caragua*, a fine majestic species of free growth.

For the sake of a change, I now turn to Mr. Salter's catalogue, and select the following:—*Angelica levistichum, fol. var.*, a fine variegated leaved plant, suitable for a damp place, growing five feet high. *Aspidistra lurida, fol. var.*, a splendid plant, suitable for a hot, dry, sandy bank; it has a very tropical character, but is perfectly hardy. *Elymus arenarius glaucus*, a grand, bluish-leaved grass, will grow anywhere, and hardier than the pampas grass. *Ferula tingitana*, a noble plant for water scenes. *Fuchsia gracilis, fol. var. rubra*, this pretty plant is one of our best rockery subjects; it is quite hardy, and in autumn very beautiful. *Phalaris arundinacea, fol. var.*, this is the well-known "ribbon grass"; Mr. Salter's variety of it far surpasses all others in richness of colour. *Yucca recurva*, quite hardy, and the handsomest of all the *Yuccas* for the parterre or terrace.

For a final search we will glance through the list of hardy herbaceous plants published by Messrs. E. G. Henderson and Son. Here we find the following:—*Arundinaria falcata*, one of the grandest of the hardy bamboos; a quite sublime plant for a sheltered spot in a choice garden. *Crambe cordifolia*, a gigantic species of sea-kale, the young shoots of which may be cooked in the same manner as sea-kale; give it a good position, and it will tell with great effect if in rich soil. *Gunnera scabra*, a very curious and handsome plant, which, in northern districts, requires shelter in winter, but is quite hardy near London. *Gynerium argenteum* is the well-known pampas grass. *Phormium tenax* is the well-known “New Zealand Flax.” *Helianthus decapitatus* we consider the best of the perennial sunflowers. *Phytolacca decandra*, this is the “Virginian Poke,” a fine herbaceous plant, growing six feet high, and producing club-like spikes of fruit, which remotely resemble blackberries. *Veratrum album*, a fine plant, worth growing in pot in the conservatory; it has a very tropical appearance.

Now in the whole of this rather large selection there is not a plant recommended but is cheap to begin with, easy to grow, and most effective for stateliness, richness, or beauty. None of the FLORAL WORLD gardens need be tame, therefore, with such a choice of noble subjects at command.

S. H.

THE VERBENA AS A BEDDING PLANT.



It is not a mere matter of taste in selecting varieties, but a matter of careful and skilful cultivation also, to secure a good display of verbenas; and we promise the careless amateur who plants verbenas every season in beds that are never refreshed with manure, or properly tilled during winter, that his display will always disappoint those who know what verbenas are and should be. To do justice to verbenas, a rich, well-pulverized loam is essential; an open, sunny position is also essential; and it is well to manage the planting so that the plants receive the slightest possible check. The beds in which verbenas are to be planted ought to be twice stirred during winter, and at the second stirring to be liberally enriched with rotten dung. In the case of beds of black garden mould, in which flowers have been grown for perhaps half a century or longer, no manuring or winter tilling will insure a good bloom, for the verbena is really fastidious about the sweetness of the soil it grows in; and where verbenas have been found to fail from this cause, a portion of the old soil should be removed, and its place be supplied by the introduction of fresh turfy loam which has never before been subjected to the operations of the gardener. There is nothing so good for verbena beds as the top spit of a loamy meadow that has lain up all winter, so as to rot the grass and cause the loam to pulverize. This, however, is often full of wireworm, and after the beds have been improved by it, the good accomplished thereby may be neutralized

by the presence of vermin. It is best in all cases where loam from rotted turf is introduced to the flower garden, to put a few traps for wireworms: slices of potato and carrot are the best; and if these traps reveal the presence of the vermin in any quantity, it will be well to pursue a system of trapping till they are reduced or annihilated, and as long as the traps are kept up fresh and fresh, they will not touch any plant in the ground.

Two causes of the occasional failure of verbenas require to be mentioned. If they starve for a long time in small pots in very sandy and innutritious soil, or are got into a succulent condition by being grown fast in a damp and highly-heated atmosphere, they are very likely to become the prey of red spider soon after being planted out, or to be thrown into a blooming state before they have made sufficient growth and root-hold; and then, after a tolerably good display of colour they become lean and poor, and scarcely bloom again for the rest of the season. To prevent such catastrophes, make it the rule never to plant until the plants are somewhat hardened by exposure to the atmosphere in some sheltered place in their pots. If they are put out under a wall or fence, or in a pit where they can be covered at night, they may be very safely hardened, and a few days of such exposure will be better than transferring them suddenly from under glass to the open ground. At this time of year exposure to the weather, with shelter for a week, is sufficient to harden any plant; but earlier in the season a longer period of exposure, and with more care as to shelter at night, is needful. In the case of verbenas grown to a large size and showing bloom in very small pots, there will be saving of time in the end if they are first shifted into pots the next size, with good compost, and the blooms all nipped out; and when they have filled those pots with roots they will be found to be in a free-growing state, just fit for turning out into beds, and will last longer and make a much better display than if they had been planted out in the first instance, and allowed to bloom immediately. But starved verbenas may be planted out without shifting, or if advantage can be taken of warm, damp weather, when, instead of languishing till red spider seizes upon them—which would surely be the case if put out in hot dry weather—they will make new roots at once; and if the incipient blooms are all nipped out, they will devote their energies to the formation of new wood and a store of the vegetable pulp, which is the first necessity of free blooming, and for the rest of the season bloom superbly. You see the object of these methods of management is to secure a free-rooting and a free-growing habit first; and when a good foundation is secured, the plants may be allowed to bloom as much as they please, but if forced into premature bloom by any process of starvation they will be ruined for the season.

Now as to pegging. There are many close-growing dwarf kinds of verbenas that never require pegging; those with lax and vigorous habits must be pegged. It is important, however, for the amateur to remember that it is possible to be in too great a hurry with pegging, and so check the growth and spoil the display. After the

plants are in their places, and growing freely, give them regular attention. In the first place, let them have only as much artificial watering as will suffice to keep them in healthy growth from the time of planting until there are heavy rains, and thence to the end of the season do not water at all, unless they show signs of real distress by long drought, and then give a tremendous soaking, and no more for a week at least. The watering is in fact the least important of all the needful attentions; for the fact is, the less they have of it the better. But it is very important to secure an even growth all over the bed, and for this the eye and the hand must be active. Any plant that has a languid look, and fails to grow as it ought, remove, and supply its place with another. Any that grow on one side pinch in, and compel them to grow on the other side also. Where any very strong shoots take the lead, and shew flower early, nip them back to the same length as the other shoots on the same plant, and the result will be an equable growth throughout. It is by such attentions as these that verbena beds are brought to such perfection in great gardens, and it is for lack of them that verbena beds are frequently so ragged and irregular in small gardens; yet it is in the small garden where attentions of this kind should be most diligently bestowed, where, in fact, verbenas and all other bedders, if used at all, should be seen in the fullest perfection. There ought to be no pegging done till the plants begin to show the colour of their blossoms, and then the whole should be pegged at once, on the same day if possible, if not, within two or three days, so that the bloom may ultimately show with uniformity—being dense and rich throughout—which will not be the case if one portion is pegged at some distance of time after another. Generally speaking, it is well to peg all the shoots towards the north, but not to such an extent as to leave a bare space on the south side of the ribbon or beds. The fact is, the growth always tends southward, and there should be in pegging a predominance of shoots towards the north. Lay the shoot down with the point of the shoot towards the north, or north-west if possible; drive down the peg at about the middle of the shoot, between the joints, and leave all the short side-shoots free to rise with the points of the main-shoots when the plants right themselves after the pegging.

If we had to plant a square mile with verbenas, we should prefer to depend on a very few kinds rather than ascertain how many kinds it might be possible to introduce. But it must not be forgotten that the more we can increase the number of the varieties grown, the more entertainment does the garden afford us; and those who blunder through the details of garden decoration as if so many colours only were needed, and no risk was ever to be incurred as to the means of securing those colours, had better at once advocate paint-pots and brushes, because the requisite colours could be obtained by such means with even more certainty than with plants. We should prefer, for example, to have many varieties of verbenas in one bed rather than have one variety only, provided we could at the same time insure perfect harmony and consistency of colouring. Thus the amateur interested in observing the characters of varieties

would be much more amused by a bed of scarlets consisting of Lord Leigh in the centre, Foxhunter round it, Mrs. Woodroffe next, and Defiance outside all, than he would by a bed of one scarlet variety only; and there would be no violation of art in such an arrangement, provided a scarlet bed were required. In odd places a bed of mixed verbenas is a pleasing feature; but it is not desirable in connection with a geometric scheme.

with credit

ON PRESERVING THE FERTILITY OF THE SOIL.

BY AN AGRICULTURAL CHEMIST.



IN the year 1839 the great chemist, Baron Liebig, first suggested the use of artificial manures for increasing the crops on poor lands. When lands were dressed with bones, before this suggestion was thrown out, the agriculturist laboured under a great disadvantage, because the decomposition of the bones took place so slowly, that after the crops were removed a considerable quantity of bone was left which had evidently exerted no action at all upon the crops, thus compelling the expenditure of a great deal more manure than was necessary to produce the desired effect. As plants are unable to appropriate any nourishment which is not presented to them in a state of solution, Liebig suggested that if the bones were made soluble by the aid of sulphuric acid, which would dissolve a portion of the lime and set the phosphoric acid free, the action on the plants would be much quicker, and the expense to the farmer less. The method of dissolving bones by the aid of sulphuric acid was at the time no secret to chemists, but had been known for many years, and as the plan was very simple and comparatively inexpensive, it was recommended by Liebig; and it is probable that no suggestion in chemical science has proved of such benefit to agriculture as this one, although so simple.

But the illustrious man of science had not the most remote idea at the time what an army of speculators, traffickers, and commercial adventurers would fatten and grow rich by it. His only desire was to benefit agriculture; but a number of unprincipled men have seized upon the idea for the purpose of perpetrating fraud, and by a well-organized system rendering lighter the pockets of the unwary. It is evident from the steady increase which has taken place in the consumption of artificial manures in this country during the last quarter of a century, that agriculturists consider that the outlay incurred in purchasing such fertilizers is money well bestowed. Professor Anderson has recently made an inquiry as to the probable extent of the dressings now used, and has given an approximate estimate of the money value of the ordinary manures used in this country. From this estimate it appears that in the 60,000,000 tons of farmyard manure annually spread, there are about 45,000,000 tons of water. In this respect farmyard manure suffers greatly by

being compared with good artificial manure, as the average amount of water in guano is only 13·09 per cent. It is evident, therefore, that a manure which contains such high fertilizing properties without the water, must be of very great value, inasmuch that it is so portable that a large amount is saved in the single item of carting. It will be evident that that manure is of the greatest value which contains the largest percentage of the substance most required by the crops, and which is not contained in the soil, or in only very small proportions. This constituent appears to be nitrogen, it having been repeatedly proved from carefully made experiments that the increase in the crops has been in exact proportion to the quantity of nitrogen applied in the shape of manure. Now, as good guano is largely composed of this substance, it is of course one of the most valuable aids to the agriculturist.

There are, however, other methods by which land may be manured than the visible substances placed upon it by the farmer. Most persons are not aware that soils are able to imbibe a vast amount of manure from the atmosphere, if put in a proper condition. They will absorb from the air nitrogen in the form of ammonia and nitric acid, and the atmosphere itself gives to the land every year in the form of rain a very large quantity of these substances. This at once raises the subject of draining, for if land is clogged up with water to the surface, it is unable to benefit by the valuable manures which descend in the rain, which, instead of soaking through the ground, is compelled to run off the surface without giving half their manuring value to the crops. Again, undrained land is unable to extract the manures from the air, for this process is only carried on by reason of its porosity; and therefore, if the water cannot pass readily away, the ground remains full, the air is unable to pass among it, and thus it is unable to derive any benefit from it.

This power possessed by soil of manuring itself from the air constitutes the real value of fallowing, and this has caused the introduction of mistaken theories, among which may be classed Jethro Tull's plan. This agriculturist had got hold of an idea, which was, that he could, by continually pulverizing the soil, render the particles so fine that they would pass through the pores of the roots and enter into the structure of the plant, and thus do away with the necessity of manuring. It is not necessary to point out here the absurdity of such a notion, as every one knows that the substances extracted by plants from the soil are in the form of fluid; but yet the practice which it gave rise to was in a great measure sound. He obtained crops without manure in the sense in which it is generally used, and yet not without manure in a scientific sense, for he manured his land from the atmosphere. The plan he adopted was to prepare the whole field by thoroughly digging and forking it. The wheat was then dibbled in in rows of three together, each row being one foot apart; then a space of three feet was left without anything planted in it, and then three more rows, and so on. As soon as the wheat was up, the one-foot spaces between the rows were forked over repeatedly with a fork about six inches wide, so that it did not come nearer than three inches to the wheat, which

destroyed all the weeds, and allowed the air to penetrate to the roots. The three-foot spaces were treated the same as fallows, and were thoroughly turned over every way, and exposed to the air, up to the time when the wheat met over the three-foot intervals. After the crop was cut, the three-foot fallowed spaces were dibbled with wheat, and the part which bore the wheat in its turn remained fallow. The Rev. Mr. Smith, who followed this method for some years, reported that he gained a profit of £4 or £5 per acre every year, taking his wheat crop from it without intermission, without adding a particle of visible manure to the land; and yet he has been manuring all the time, for through the continual stirring about of the soil, and exposure of every part to the action of the air, a constant absorption of materials has been taking place from the air, which has produced a similar result to that which would follow an actual dressing with manure. This will show how necessary it is to subject land to a proper working, and that when persons hear the frequent admonition to drain, dig deep and often, and they neglect the injunction, they incur a more serious loss than they may at first imagine.

One of the principal duties of the agriculturist is to preserve all substances which will by their decomposition into manures reproduce vegetable life. The crops which are reared upon and exported from the soil every year, make a constant drain upon it of those substances of which vegetable matter is composed; and in order to cultivate well, it is necessary to add to the land those constituents which are so continually being taken from it. But it is a great mistake to suppose that because artificial manure is used, that therefore it is not necessary to take care of refuse and litter. It was never intended by the introduction of artificial manures to supersede the use of the ordinary ones, but only to assist them; for it will be evident that only a part of that which is annually exported from land in the shape of seeds, roots, fruits, meat, etc., is returned to it in the shape of farmyard dung, and that, supposing every particle of refuse could be returned to it with the greatest care, there would still be an impoverishment going on, and therefore a necessity of imported manure: but still the refuse is very valuable, and great care should be taken of it, as its loss is ruinous waste. Land is subject to another kind of loss besides that of exported vegetable matter; this occurs by the action of the rain. This water has the property of dissolving all the most valuable substances contained in the soil. If it had not this property, plants would be unable to grow, and they avail themselves of it by taking up by means of their roots water containing soluble material. But during the winter months a considerable quantity of soluble material is carried away by the action of the water falling from above, and this is a loss which it is impossible to avoid, for if the water did not dissolve, it would be impossible to grow plants upon the land, although it might contain every necessary ingredient. This kind of loss takes place to a greater extent on hilly lands than on flat ones; for in the latter the water passes off so slowly that it does not carry away a great percentage of valuable matter, while in the former case, the

washing of the water, and the force it acquires in its rapid descent, enables it to carry away a large quantity of material both in a soluble and insoluble state, a large proportion of which is often deposited in the valleys and flat lands below; and this is one reason which makes low lands so much more fertile than the hills.

There are, however, persons who suppose that in this country they can make as much manure as they require on their own farms; but the land must become eventually exhausted by this means. Even the richest land ever known will at last cease to produce without the application of manure, to prove which it is only necessary to mention the splendid lands of Virginia. These and other new lands were at first called virgin soils, as though they contained something peculiar to themselves, whereas they only contained a greater quantity of mineral substances and organic matter than lands which had been a long period in cultivation. Every year large quantities of wheat and tobacco were grown and exported from them, and for a long time they were considered incapable of exhaustion; but this actually occurred in 150 years, and at the present time they cannot be made to produce anything without the application of manures containing those very substances which had been formerly imported in the shape of wheat and tobacco. Similar results have occurred in different parts of America from such courses of treatment.

Having shown that it is necessary to apply manure to ground from which crops are continually taken, it will be as well to glance at the manures themselves. There are a great many kinds of artificial manures used in farming—bones, superphosphates, coprolites, guanos, etc.; but as we have principally to do with gardening and not with farming, we must confine ourselves to the first and last mentioned. The first account we have of the use of guano is in the year 1829, when half a hundredweight was brought from Liverpool to Scotland, and sold at 6d. per pound. In 1831 three hundredweight was brought, and the influence it had upon the crops was so encouraging that it obtained great favour among farmers, so that in the years 1841 and 1842 it began to be used in large quantities. From that period its consumption has rapidly increased, and at the present time is so great that the trade in guanos is an important branch of commerce. But this circumstance has given occasion for unprincipled dealers to come into the market, and by the temptation of low prices offer to the public a grossly adulterated article, which is, however, very much dearer than the apparently high-priced genuine guano. The value of most artificial manures depends pretty much upon the quantity of ammonia and phosphate of lime they contain, and it must certainly be dear to the farmer to purchase as manure ground tiles, oyster shells, sand, brickdust, loam, or any article of that kind which may be mixed with it; and yet such things are mixed with it systematically, and purchasers duped and robbed to an enormous extent.

There are so many manufactured articles introduced in the market under the name of guano that one needs to be continually upon his guard. The term guano can only be properly applied to

the faecal deposits of birds and other animals, so that when you hear of British and Italian guanos, your suspicions should be instantly aroused, as it is evident that no such deposits have occurred in the places mentioned. Some dealers have the assurance to tell the public that they can improve the Peruvian guano, and offer it as *Peruvian guano with ammonia partially fixed, whereby its quality is much improved*. But some idea may be formed of the value of these improvements when it is stated that the guano not so improved is worth £13 per ton, but after it is improved by the dealers it is only worth £2 10s. per ton.

THE VILLA KITCHEN-GARDEN.—No. X.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



THE PARSNIP is a subject requiring a deep mellow soil, and if rather heavy in nature and properly seasoned, it is such a soil as will produce the best results. The seed should be sown in drills, eighteen inches apart, in March, or early in April; the seed to be buried about an inch beneath the surface, with some fine soil obtained from the surface of the bed by frequent workings of the fork and rake. Previous to sowing, all these kinds of seed-beds are liable to have the surface battered down by rain; it is, therefore, necessary, as soon as the seedlings have advanced sufficiently for the cultivator to trace the lines of plants distinctly, to run the Dutch hoe between the drills, so as to loosen up the soil between them. In June, when they have grown to the height of three inches, they should be thinned out to twelve inches apart from plant to plant. The only after culture they require is to keep them free from weeds. There is no necessity to dig the whole of them up in the autumn, as they keep better in the ground, and may remain there until February, when those not used may be taken up and stowed away in any out-building where they will be safe from the air, the light, and the frost. The best sort for gardens is the new *Student*, the next best is the old *Hollow Crown*. The Jersey parsnips are not desirable.

PEAS.—The first sowing of these should be made on a dry south border, as early in February as the weather will permit. *Carter's First Crop*, and *Sangster's No. 1*, are the best for the first sowing. A second sowing should be made again in March. The best for this crop is one of the larger kinds of Peas, such as *The Champion of England*, which is a good second early Pea, or *McLean's Wonderful*. If large Peas are in favour, sow at the same time either the *British Queen* or *Ne Plus Ultra*. These last two will be about sixteen weeks coming into bearing, while the *Champion of England*, in ordinary seasons, will be in a high state of bearing in a fortnight less; so that, by sowing both together, they follow each other in use in due order. It is from the want of understanding the characters of

the different varieties of Peas, that people are sometimes disappointed in the time they should come into bearing; for, by following the usual course of sowing at stated times—say every three weeks—they find, when different varieties are grown, that there is a blank in the order of coming into use. It is therefore necessary to study the different characters of the sorts, to avoid these mishaps. Those who prefer those kinds of shorter growth may choose *Bishop's Long Pod*, *Advancer*, *Dickson's Favourite*, and *Bellamy's Green Marrow*. These last four may be sown as soon as the previous crop is about two inches above ground, and then they will come in succession; but it is not advisable to sow later than the end of June. All tall-growing Peas, such as the *Champion of England* and *British Queen*, should be sown ten to twelve feet apart from row to row, and the space between occupied with some other summer crop. But the dwarf-growing ones, such as are here named, may be grown six feet apart. To sow them at a less distance is to seriously shut out the influence of sun and air, when they attain their usual height, and the consequence is a poor crop.

To grow *late crops of Peas* successfully, there should be a special preparation, similar to the way that trenches are prepared for celery. First, dig out a trench, and place the soil on one side. Put into the trench about four inches of rotten dung, and fork it up well with the soil in the bottom of the trench. Then fill in the trench again, and sow the Peas. This process gives a trifle more labour than the old plan, but it is infinitely superior to it, as Peas so treated are not so much subject to mildew as when sown in the ordinary way.

It is always desirable to earth Peas as soon as they are a couple of inches above ground, as it prevents the wind from rocking them to and fro, as well as assists the formation of new roots on the surface. This is especially desirable in early Peas, as then the roots are induced to work upwards where the soil is warmest, although at the same time they require a generous open under-surface, so that they may work vigorously both ways.

While on the subject of Peas, I cannot help saying that very many gardens are destitute of Peas when they ought to be plentiful, simply for the want of being cultivated; for we so often see them so huddled together that no parts of the rows, except the outside and a few sprigs at top, have a chance of forming pods. Yet people will go on continually in their own old track of sowing thick and complaining quick. How absurd it is to sow Peas at three, or even four feet apart that will grow from six to eight feet high, and expect them to be productive, when the least distance when sown side by side should be six feet; and even this distance does not give them sufficient room for development, as those who sow at ten or twelve feet apart can testify.

Then, again, how many content themselves with the most commonplace preparations for late Peas. Yet these are the first to complain when mildew appears, and the Peas cease to be productive. Except in very sandy or poor peaty soil, it is no difficult matter to get a supply of Peas in an ordinary summer, if they are prepared

for as above advised, and well mulched with some half-rotten dung along each side of the row, if very dry weather is likely to last.

All Peas should have their sticks put to them as soon as they are three inches high, but there is a common error in staking Peas. Most people place the sticks so that the points of all of them, both sides of the row, come close together at top. This is not the proper way. The sticks should be placed in the ground firm, and instead of the points leaning inwards—that is, exactly over the centre of the row—they should lean outwards like the two sides of the letter V. This is the best of all systems of staking Peas, as it opens the growth to light and air, and the result is increased production.

ON FORCING EARLY CUCUMBERS.

BY A MARKET GARDENER.



ONE great complaint among the growers of early cucumbers is, that the plants are often weak and yellow. This is occasioned by the beds being kept too warm, and too much covering being placed over them at night. The heat of the beds causes the plants to grow too fast for the small *supply of light* which they receive *while the days are short*; and which are rendered shorter still by the coverings being put on so early in the evenings, and left on so long in the mornings. I have always found that so much covering was rather injurious than beneficial. My practice is to cover up only in very cold weather, and then only with a single mat. Crown glass should be used for very early forcing, and the surface should not be puttied. The glass in old lights is, like horn, almost impervious to the light.

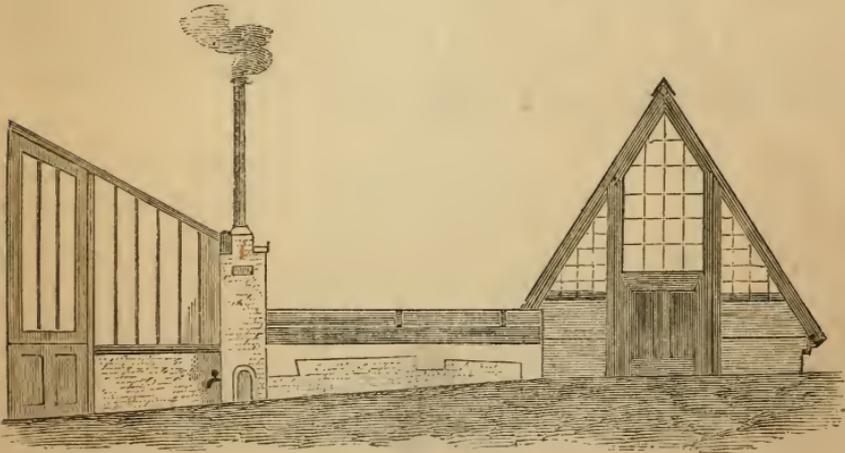
In mixing up the soil for cucumbers, fresh dung should be used, and it should be allowed to rot in the soil. The common method of employing rotten manure is bad, because in that state the strength of the dung is already exhausted.

The old notion is still prevalent, that it is best to sow old seed, because plants raised from new grow too vigorously. There is no sense in such a prejudice; my own invariable practice is to choose new seed. The usual method of putting three plants into one pot is also wrong. My plan is to put only one, and one plant only under a light. One good plant will fill the space of a light sooner than three set together.

It often happens that the plants are drawn up, as it is termed, having long stems. This has been attributed to the want of air, and to the plants being too far from the glass. But it arises, in reality, from there being too much heat in the bed below; for the plants never grow so, however far removed from the glass, and scantily supplied with air, if there be not too much under-heat.

THE LEAN-TO AND THE PAXTONIAN.

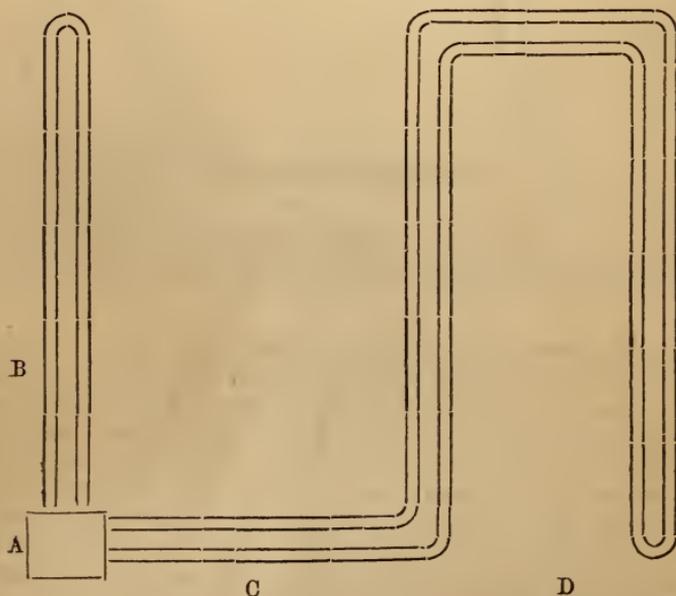
READERS have frequently asked for further particulars of two plant-houses in the garden at Stoke Newington, which have often been referred to as peculiarly useful and convenient for our experimental purposes. The lean-to occupies the site of a former ditch, and for a special reason was built at so low a level that, in winter, after heavy rains, there is frequently a depth of twelve inches of water on the floor. It is not, of course, recommended that a greenhouse should ever be so built; I am merely stating the fact, that this was so constructed for a particular reason. The Paxtonian is on a slightly higher level, and is never swamped. Owing to the low position of the lean-to, it was always considered impossible to heat it, the border on which the plants stand being but a few feet above the general ground level; and inside the door is a well always full to the brim, so that it appeared as if a place for a furnace could not be found. There was no place for it except where a constant body of water would render it useless. Hence, for several years, the lean-to was heated with Musgrave's slow-combustion stove, and the Paxtonian was used for subjects that only required a little shelter.



It was, however, at last determined to heat these two houses in a manner which would adapt them for stove or greenhouse plants—for any purpose, in fact, which might occur; and the question arose, in a very solemn manner, how to do it? A plan was at last matured, simple enough, of course, and with only one nice point worth particular mention, and that was that it depended on a very nice calculation of the vertical space at command, and the squeezing into a space of only two feet vertical height the furnace, boiler, and rise of the pipes in the lean-to—the other house, being on a higher level, occasioned no difficulty. The form of boiler chosen is called “conical.” It is simply an upright cylinder. The ash-pit is within

an inch of the water after heavy rains, and the water seldom recedes more than twelve inches from it at any time, even during drought. The first idea was, to take a pipe of extremely small bore (about two inches) along the front of the lean-to, close to the roof, and have a return-pipe of very large bore (perhaps twelve inches) as low down as possible, to heat the border of the house. But this was abandoned, and the plan finally adopted was to carry a four-inch flow and return close together along the front of the house, *on a dead level*. It was impossible to have a rise; there was not vertical space enough to do it.

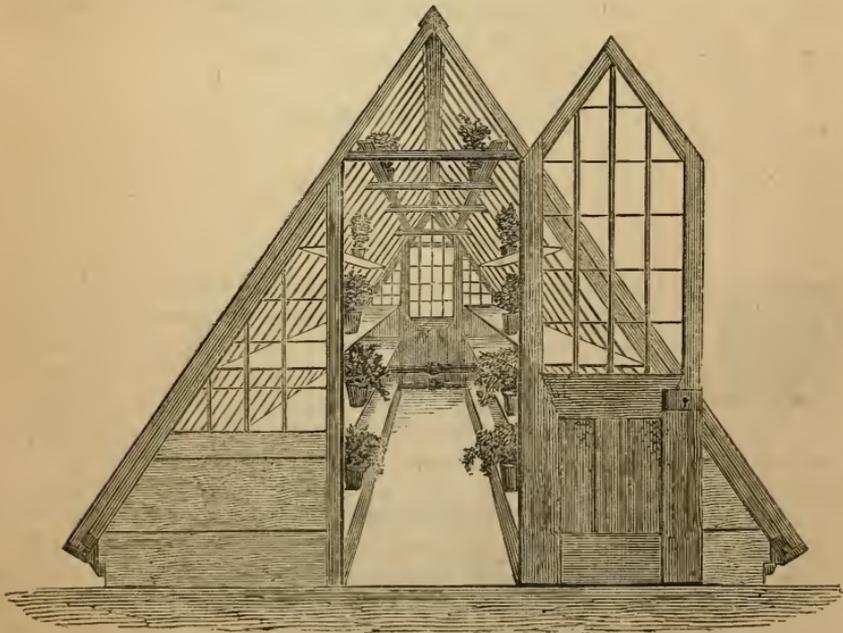
The diagram will show that the Paxtonian, which is the house on the right hand in the figure, stands considerably above the level of the lean-to; so we had but to make sure of a fire in the furnace, and the heating of this house was an easy matter. The pipes had, however, to be taken a distance of twenty-five feet from the furnace to the Paxtonian; and, as this would cause a great waste of heat, a long, trough-like wooden box was fitted to the dwarf wall on which the pipes rested, and they were thus enclosed from the weather. The box was covered with stout shutters clothed with felt, and it became immediately a dark forcing-pit, and has been used ever since, during the winter and early spring, for forcing sea-kale, asparagus, rhubarb, etc. The pipes in this box are of two inches bore, to cause a quick flow, and make the waste of heat the least possible; but, as soon as they enter the house, they are enlarged to four inches, and thus they pass all round the house, close under the glass, and resting on the borders. The general arrangement may be made more plain, perhaps, by a few simple lines:—



A, furnace; B, pipes in lean-to; C, pipes in forcing pit; D, pipes in Paxtonian.

The solution of a difficulty in this simple way is a matter of more than passing interest, for where it appeared impossible to employ a hot-water system it has been effectually accomplished, and a most excellent forcing-pit obtained into the bargain. It is an important exemplification of established principles that the lean-to which adjoins the boiler, and receives its pipes directly from it, obtains far less heat than the Paxtonian, which is twenty-five feet distant, and the pipes which supply it first have to heat a large body of air and material in the forcing-pit. The lean-to is never more than a decidedly cool greenhouse, but the Paxtonian may be heated to the pitch of a stove by simply driving the fire a little. The difference is due entirely to the fact, that from the boiler to the Paxtonian *the pipes rise*, whereas in the other house they are on a dead level throughout. This very fact proves that our difficulty in the first instance was not imaginary, and renders its solution the more satisfactory.

The annexed figure of the Paxtonian will bring before us another interesting particular. It will be seen that there are five tiers of plants, one above the other, from the ground to the summit. We have represented one pot on each tier simply to avoid crowding the picture; but the entire house is crowded all the winter in just this manner, from end to end, and is made to winter almost as many plants as its vertical as well as its horizontal measurements will



admit. It would not be worth while to say so much, unless it could be added that our plants are never drawn, never injured in any way by being thus arranged, shelf above shelf, from floor to apex of roof.

It will be observed that a house of this form admits an immense flood of lateral light. To make the best of the case, therefore, there is a bed on either side of the path, and on this bed are placed such plants as require least light all winter of any, comprising ferns, hydrangeas, crinums, aspidistras, certain bulbs, such as lilliums, etc. All the shelves are formed of open spars, therefore between the pots some light is diffused, and all kinds of plants are kept in this way, but the bulk of the stock consists of zonal geraniums. During the past month, the house has been cleared out, and the shelves reduced to one on each side above the ferns, and one on each side close under the apex of the roof. Plants are growing too fast now to allow of this superposition without harm, but then the weather permits the transference of many things to frames, pits, and even to the open air. By these several contrivances, therefore, we gain several ends, and we cap them all with the economy with which the scheme has been carried out. Mr. Lynch White seconded our views most admirably in fitting the boiler and pipes, the whole costing (including nearly 200 feet of pipes) less than thirty pounds. As for the Paxtonian, it does the work of three houses of its own size every day throughout the year; but in winter it does the work of half a dozen, for the path is always crowded, so that there is only just enough room for one to creep along it. When a place is meant for work solely, and not for show, it is not hard to bear with a few arrangements that would be unbearable if associated with decorative features. The lean-to in its original state was figured and described at page 118 of the volume for 1863.

S. H.

ON PÆONIES.

BY M. ROUILLARD.



THE herbaceous and Tree Pæonies of China are well known to rank amongst the most ornamental plants which have found a place in our gardens. Their large flowers, disposed in elegant disorder, or with graceful regularity, assume the most varied colours, and are appreciated not only by florists, but also by artists, who produce them in their ornamental designs. The plants are, moreover, very hardy, and they have an indefinite longevity.

The Tree Pæonies thrive in peat earth, either pure, or mixed with fertilizing substances, and generally in any sweet porous garden earth rendered fertile by well-decayed manure. They commence growing so early in spring that the first shoots and flower-buds are sometimes destroyed by frosts if not protected. Nevertheless they generally develop themselves, in spite of such accidents, from the lower eyes, which give fresh flowers, and in all cases the plants themselves are not affected in respect to their vitality. Some persons cultivate Tree Pæonies in conservatories, in prepared earth which is

renewed from time to time; and thus sheltered from all hurtful atmospheric influences they develop in perfection their splendid flowers, the duration of which is prolonged by means of shading.

The herbaceous Pæonies succeed in nearly all soils having sufficient depth for their strong roots. They have the advantage of flowering after the Tree Pæonies, so that the flowering season may be prolonged from the beginning of May to the end of June.

All Pæonies love water, and principally the herbaceous sorts, which ought not to lack it, not only from the moment when the flower buds commence to form till they have perfected their flowers, but also from the beginning of August, continuing until the rains of autumn, to favour the production at the base of the stem of strong eyes, capable of yielding vigorous flowers in the following season. To secure the flowering of Pæonies in full perfection, it is essential to place them in very open positions, but where they may not receive the sun during the hottest part of the day.

When masses of the herbaceous Pæonies have become strong, and the ground has been exhausted by them, it is indispensable to take them up and separate them, preserving for planting portions having two or three strong roots, and the eyes well fed, and then to change their position; this operation should take place every six, eight, or ten years. As a general rule, when the flowers become few and diminish in size, the roots should be transferred to fresh soil. In the case of certain varieties it is beneficial, when the young stems are rising in spring, to take away the weakest, leaving only those which are more vigorous.

The multiplication of Chinese Pæonies is easy. All of them may be increased by division. However, as the tree varieties grow slowly, and one would have to wait many years for the tufts to be strong enough to be divided, it is found better to propagate these by grafting. To this end, strong roots of herbaceous varieties are procured; these are kept growing, and then grafted, a branch with one or more buds being inserted upon the side of the root. The grafted roots are put under bell-glasses or in frames, placed by preference in a north aspect, and the grafts soon become united, and commence to grow promptly, producing roots for themselves. The grafting is performed from the middle of July to the middle of September.

Few raisers of seedlings take this genus in hand, because it requires so much space to grow the large number it is necessary to plant out, in order to have a fair prospect of gaining some remarkable novelties, and it is besides necessary to wait for their flowering for seven, nine, or ten years, and even more in the case of the Tree Pæonies. However, MM. Guérin-Modeste, Verdier Père, Mathieu, and Lémon, of Paris; Thomas, of St. Denis; Hiss, of Versailles; Callot, of Douai; Parmentier, of Enghien, and several others, among whom the Italian growers must be especially mentioned, have obtained many new Tree Pæonies as well as herbaceous varieties, magnificent sorts not yet distributed. To these must be added those introduced direct from China by Mr. Fortune. Several of these varieties of Tree Pæonies remain as yet without equal in respect to the regularity of their form and the beauty of their colours.

Many Pæonies, both ligneous and herbaceous, are to be found in commercial catalogues ; but, as in the case of all flowers of which the varieties are numerous, one has to restrain one's choice to those among them which are most perfect, rejecting those which are inferior.

TOWN GARDENS.



VEGETATION is affected by influences in towns which do not exist in the country. Smoke and dust tend directly to choke the stomates, or pores of the leaves of plants, just as they corrode the bronchial tubes of the lungs of animals ; and respiration, both in the plant and the animal, is less perfectly performed where smoke and dust prevail than where the air is pure. But the air of towns is far less injurious to plants than is commonly supposed ; and, in exemplification of this assertion, we invite our readers to compare at any time, but more especially in autumn, when the growth of the season is complete and fresh, the evergreen shrubs in villa gardens in the suburbs of towns, with plants of the same kind growing some miles distant in the open country. The town trees will be found the most luxuriant in growth, and their leaves will, without any exception, be of a richer and deeper shade of green than the country trees. It was said (perhaps in fun) that the "dash of sewage in Thames water made it excellent for beer, and fattening to the human subject." But the writer of this avers that a certain amount of coal smoke diffused in the atmosphere is beneficial to vegetation, and he can back this assertion with proof when needful. There are, however, some forms of vegetation to which smoke in small quantities is inimical, and these will be referred to presently ; all that is intended by our defence of smoke for the present is to comfort the suburban gardener with the assurance that, if he makes his selections wisely, the smoke will be his friend. He need not be discomfited by the assertion that if he makes his selections unwisely, the smoke will be his enemy ; but still he may as well take warning so far. Another of the evils incident to the suburban garden is defect of light. Many delicate alpine plants refuse to live in town gardens ; they want purer air, but they also require *intense light*. In their native sites they are neither shaded by walls and trees, nor is the intensity of the light subdued by the thick veil of smoke which covers the heavens perpetually in the neighbourhood of towns. Much has been written about town gardens, but this particular point has not been sufficiently elucidated ; the sort of light diffused in towns is well adapted for some plants, and quite insufficient for the wants of others. It has frequently been found that plants which refused to thrive on the common level of a town garden grew luxuriantly, and were preserved in perfect health, when placed on raised banks or mounds *above the general level*. How shall we explain this ? Probably the explanation should be that, in the first instance, they were planted in exhausted and ill-conditioned soil ; but when banks were made for them, fresh soil of the best quality was obtained, and the elevated position insured them more perfect drainage, and a fuller exposure to solar light.

When you are looking for a residence in the suburbs, and purpose to derive some pleasure from the garden, cast your eyes about the district, and if you find plenty of big trees and really well furnished grass plots, you may be sure the soil is good. Where elms, poplars, limes, and willows thrive, you may plant roses with safety. In districts where the trunks of trees and the tops of old walls are clothed with green mosses and orange lichens, you may hope to grow many delicate herbaceous plants that do not usually thrive in town gardens. The common spruce is met with everywhere in suburban gardens ; make use of it as a pilot tree. If you see all the spruces in a district with clean leaders—that is to say, if they are healthy and vigorous at the extreme summit—you may be sure that the subsoil is as good as the top crust, and you may grow many choice trees, and especially fruit-trees, that would not live long on a wet, or gravelly, or ferruginous subsoil. As for that matter, the topmost branches of trees may always be regarded as the counterparts of their deepest roots, and if their heads are sound, you may safely conclude their

toes are comfortable. This cannot be said of heads and toes in general. The holly always dies at top as soon as the roots reach any poisonous stuff, such as stagnant water; and the apple-tree becomes gouty, and will actually become disfigured with running sores, if the roots are compelled to run in wet, sour, or exhausted soil.

As to grand subjects, the most difficult to deal with are coniferous trees. In close proximity to a smoky town, the commoner sorts of junipers and yews alone should be planted, and these stand smoke well, especially in a deep, moist soil. In the suburban garden, *par excellence*, where, we will say, there is smoke enough to give to large-leaved evergreens a rich dark hue, the following are the very best coniferous trees that can be planted; *Cedrus Deodara*, *Araucaria imbricata*, and *Cupressus Lawsoniana*. The last is one of the best town trees in the world, but is not appreciated as such. In every villa garden we find araucarias and deodaras, but suburban people do not take to the cypress, and so they lose a friend. These, with yews and junipers, will go a great way towards the supply of rich furniture, and special note may be made of the fact that the flat-headed yew, *Taxus adpressa*, will thrive in the shade of large trees, and make a fine undergrowth where scarcely anything except itself and ivy will live.

The large-leaved evergreen shrubs should be the stronghold of the suburban gardener for his foreground and highly-dressed scenes. The Holly, the Aucuba, the Box, the Euonymus, the Chinese and Japanese Privets, the common Evergreen Oak (*Quercus ilex*), and *Skimmia japonica*, are the best evergreens for town amongst thousands. We say nothing of the Common Laurel, because it does not like town air, and because we suppose no one would plant it except as a screen in a suburban garden, and for that purpose it is good enough. But as laurels are in pretty good favour, we name the best sort for the townsman—it is *Cerasus colchicus*, with longer and more pointed leaves than the common laurel, somewhat hardier too, and a tree that lives in many a place where the common laurel dies. We have a splendid specimen of this tree trained to a wall, which is literally shaved all the year round by a draught of wind as keen as a razor, and the roots of the tree are in a gravel path which is trodden at all hours and all seasons; yet it is always in perfect health.

One of the most common failures of suburban gardeners is the grass plot, whether in the entrance court or in the garden proper. A good deal of labour is wasted in scratching the surface and sowing seed, which might be bestowed with far better result by means of an annual dressing of manure applied in February, March, or April. Nothing like stable-dung three parts rotten, spread all over two inches thick; but the material may be scarce, or its appearance may be objected to. The next best dressing is Lawson's phospho-guano, sprinkled thick enough just to cover the ground like a film. The next best is nitrate of potash, and the next best nitrate of soda. Almost any worn-out lawn may be cured by such medicines as these; but if renewal is essential, then we say get good turf from some spot *near at hand*. Don't, if you can help it, send to the country for it; for, strange to say, country turf does not last long in town. The sowing of grass seed in suburban gardens is an absurd proceeding, except in the case of a very open plot, where building is going on, and then it is likely the turf will be formed by the time the house is built; at all events the builders, if they trample and smash the young grass, will give it plenty of time to make itself, for they always take exactly twice as long to build a house as the term agreed on in the first instance.

On the semicircular grass plots to entrance courts we usually see a lot of standard roses in a deplorable condition. We must take the liberty of saying that we rejoice in observing that standard roses so situated are *always* a disgrace to the place, because it is execrable taste that places them there. What business has any tree on a grass plot in an entrance court, when it is like a mop in outline, and leafless and flowerless six months out of the year? One Irish yew or juniper is worth fifty standard roses any day for such a purpose. However, everyone to his taste; our business is more particularly with the horticultural part of the subject, and we have to say that standard roses do not thrive satisfactorily in any garden near a great city. The lover of roses, whose lot is cast amongst houses, should avoid them until he has ascertained by observation that his atmosphere and soil will suit them. If a townsman *will* have standard roses, let him buy a fresh lot every alternate year—that is to say, plant them and let them stand two whole summers, and then plant a fresh lot. What you are to do with the old

ones it is not for us to say, but at all events the stems make first-rate flower sticks. But roses of all kinds, *on their own roots*, are not at all difficult to grow in suburban gardens, and these the townsman should look after; and let him, in the process of looking, take care that no nurseryman persuades him that briars and manettis are to be preferred. A rose on its own roots will do for itself what no stock can do for it, that is, *renew itself from the root perpetually*. Suckers from stocks are nuisances; suckers from roses are roses. It is to the interest of the trade to push grafted and budded roses, and therefore delusions respecting them prevail.

As to fruits, generally speaking, apples, pears, cherries, plums, and the common bush fruits, such as currants, gooseberries, and raspberries, do well in suburban gardens if properly treated; but peaches, nectarines, and strawberries do not thrive. There are exceptions, of course, but we are speaking generally; and unless the garden to be planted is large and open, breezy, with abundance of light, we should be very cautious about planting the last-named subjects. Townsman fond of fruit, and who cannot succeed with certain kinds, should "go in" boldly for the best dessert gooseberries, such as Companion, Pitmaston Greengage, Whitesmith, Hedgehog, and other of the highly-flavoured kinds. As for apples and pears, all the good sorts may be planted, for wherever a tree of any kind can live, these will, and give good fruit. Last summer we saw some boys pelting a huge Swan's-egg pear tree in the City Road; it was loaded with fine fruit. The Golden Pippin apple, the Shepherd's Fame apple, and the Bringewood Pippin answer well; but it is best to be cautious about planting Ribston Pippin and Blenheim Pippin, though these do well if the garden is open and sunny.

S. H., in *The Field*.

SONG OF SPRING.



H, joy for the dawn of the promising year,
 The birth-time of beauty and bliss,
 When spring stoops down with a smile and a tear,
 And zephyr first ventures a kiss.
 We sing the song of the green spring-time,
 The season of pearls and flowers,
 The morning of beauty, the budding, and prime
 Of earth, and her jubilant bowers.

'Neath the glancing eye of the daisy white,
 The glimmering grass is springing,
 And swelling buds of mezereon bright,
 Their magical light are flinging;
 Then sing the song of the green spring-time,
 The dawning of life and joy;
 When the golden gleams of a happier clime
 The fetters of earth destroy.

For summer is near, and buttercups blow,
 And sunshine glimmers aloft;
 And winds play tunes which merrily flow,
 Though in melody mellow and soft;
 Then sing the song of the green spring-time,
 The season of promise and bloom,
 When buds have birth, and the gladdened earth
 Awakes from her wintry tomb.

GENTIANS.



OW frequently in these days do we hear aged people inquire after some of the flowers of their youth, old-fashioned flowers of days gone by, old favourites that have been discarded for more modern introductions? Amongst old plants now fast disappearing, I am sorry to have to enumerate the beautiful Gentians, *acaulis* and *verna*, two charming spring rivals; indeed few spring flowers are more lovely than these; and I question if the spring Gentian (*G. verna*), which is the best and most beautiful of all the species, opening as it does its large blue dazzling flowers in April, has any equal at that season. Its dense tufts of brilliant blue flowers are indeed unsurpassed for effect, and the effect is obtained just at a time when floral display is much needed.

It is true that it is somewhat shy as regards cultivation. It is, however, perfectly hardy, and where soil and situation suit it, it flourishes and flowers most freely, which is the case here, where it is used as an edging to several diamond-shaped flower-beds, in lieu of box, on two coloured designs, on either side of the conservatory. The situation is elevated, and consequently rather dry, but partially shaded. I attribute the success of the plant here, however, to its being planted in lime and mortar rubbish, the same being used rather thickly on the walks to keep down worms. Into this it roots freely; indeed, nothing can do better than it does here, growing as it does as freely as Couch Grass. I also find it to do well in a mixture of maiden loam, mortar, rubbish, and gravel. I generally plant divisions of the roots as soon as the plants have done flowering, but I have planted in autumn with equal success. In order to insure a profusion of blossom, the plants should not be removed too often.

In raising plants from seed, it is requisite to sow as soon as the seeds are ripe (otherwise they soon lose their power of vegetating) in pans filled with rather heavy peat. Sow on the surface without covering, except a slight sprinkling of silver-sand, then place the pans either in a cool frame facing the north, and kept close, or on the north side of a wall, where they are completely screened from the sun, and cover them with a hand-glass. As soon as they are large enough to handle, prick them off in a bed composed of the compost alluded to above, where they can remain until their final planting. This short notice will suffice to answer some private inquiries that I have not answered by post.—EDWARD BENNETT, Osberton Gardens, in *Gardeners' Chronicle*.

CANNAS IN PARIS.—In rambling through an obscure part of Paris the other evening, I encountered a plant of *Canna* springing up strongly through and around a box-edging—pretty good evidence that it had remained there for some years. Upon inquiry of the proprietor I found this was the case, and that he had no doubt of the hardiness of several other kinds. How deep are they planted? Not more than eight or ten inches. When we consider that the Cannas are amongst the most valuable plants we use for giving grace and verdure to the flower-garden, this surely is worth knowing. Indeed, considering their diversity of colour and size, their graceful pointed habit and facility of propagation, we must concede them the first place. They are capable of being used by anybody who grows ordinary bedding plants, and may, in fact, be regarded as such now. That they may be preserved so very easily through the winter is much in their favour. The following are among the best of the hardiest kinds:—*C. Annæi*, *musæfolia gigantea*, *limbata Warszewiczii*, *nigricans*, and *zebrina*. Of course they will prove equally hardy with us. As it is desirable to change the arrangements as much as possible every year, it may not be any advantage to leave them in the ground, and in that case they may be taken up with the bedding plants, and stored as simply and easily as carrots, parsnips, or potatoes. We may thus regard them as hardy plants, and the necessity of using expensive stove things for putting out in the open air is quite done away with. I have no experience of the behaviour of the Cannas in the open air in the north, and fear they will there be found wanting, but about London, and in the south of England, nothing can grow more satisfactorily. I should like to know how far north they may with safety be grown, and perhaps some of your readers would kindly inform us on this point?—"R." in *Gardeners' Chronicle* of June last.

HOW TO PROPAGATE MISTLETOE.



HE seeds being enveloped in a wet, slimy, or gummy-like substance, it dries and fixes them firmly in a short time, if put on when the bark and weather are both dry; whereas if the bark is wet, and rain falls shortly afterwards, they are liable to drop, or be washed off. In planting or rubbing on the seeds, take a berry between the finger and thumb, press it till the skin bursts and the seed is protruded. Apply it to the part of the bark selected, throw away the skin, as it is of no further use, and might attract birds to the seed; then rub or press the seed firmly on with the point of the finger, and the sowing is completed; but a little dry bird or fowls' dung, a little old lime mortar or dry earth, may then be dusted on to conceal the seed from birds. This will afford sufficient protection if the seeds be put on so thickly that a large proportion can be spread, but when these are scarce, it is better to cover them with gauze or fine netting, held at least an inch off the seed, with pieces of furze or branch spray. Or, they may be surrounded at a distance of one or two inches by a few fine willows, wrought basket-like, and just sufficiently close to keep out birds' heads and beaks. It is not only unnecessary but improper to cut or open the bark, as the hardened wounded surfaces prevent, or at least impede, the insertion of the young rootlets, which only take hold and insinuate themselves where the bark is tender, fresh, and devoid of outer dried or dead skin. Supposing the seeds to be rubbed on either this or next month, they will put out small knob-pointed radicles or rootlets in April or May, by which they become more firmly attached to the bark, but we have never seen them put forth leaves till the second summer; and this last season we had a considerable number of seedlings, none of which showed leaf till the third summer, and some look as if they would not do so till the next or fourth summer; but the trees on which their seeds were sown had to be all transplanted the second spring, which might have retarded their progress for a year.—*Farmer.*

NEW PLANTS.



THUNIA BENSONLE, *Mrs. Benson's Thunia* (*Bot. Mag.*, t. 5694).—Orchidaceæ. This is a close relative of the old *Phajus albus*. It is a native of Rangoon. It is a robust-growing orchid, with large flowers of a pleasing rose colour, the lip being deep purple, with a yellow-crested disk.

BEGONIA GLANDULIFERA, *Glandular Begonia* (*Bot. Mag.*, t. 5965).—Begoniaceæ. An elegant species from Trinidad. The leaves are obliquely cordate, dark green; flowers in a tall scape, pure white.

DICENTRANTHERA MACROPHYLLA, *Large-leaved Dicentranchera* (*Bot. Mag.*, t. 5696).—Acanthaceæ. A fine plant, obtained by Mr. Gustav Mann in the island of Fernando Po. It is an erect shrub, eight to ten feet high, with leaves ten to fourteen inches long, obovate-lanceolate. The flower-spikes are terminal, a foot long, the flowers almost whorled; the corolla is tubular, expanding into a five-cleft limb of a pleasing rosy-purple colour.

ODONTOGLOSSUM ALEXANDRÆ, *var. GUTTATUM* (*Bot. Mag.*, t. 5697).—A pretty spotted variety of this charming species.

VERNONIA CALVOANA (*Bot. Mag.*, t. 5698).—Compositæ. A beautiful plant from the Cameroons Mountains. It is a tall shrub, eight to twelve feet high, the leaves oblong, eight to fourteen inches long, the flowers in large corymbs, the florets purple, surrounded with white involucreal scales; in other words, the flowers are white, with purple centres.

COLA ACUMINATA, *Kola nut tree* (*Bot. Mag.*, t. 5699).—Sterculiaceæ. This is the well-known Kola nut of tropical Africa, a tree of which flowered at Kew in January, 1868. The leaves are oblong and coriaceous, the flowers unisexual, one inch across, yellow. It is a plant of but little interest to English cultivators.

PASSIFLORA TRIFASCIATA, *Passion Flower with three-banded leaf* (*L'Illust.*

Hort., t. 544).—Passifloraceæ. A beautiful stove climber, from tropical America. The leaves are three-lobed, and have three bold bands of sombre purple, with margins of deep olive green. It will be valued as a beautiful-leaved plant.

SACCOLABIUM BLUMI, var. **MAJUS** (*L'Illustr. Hort.*, t. 545).—A handsome large flowering variety of a well-known orchid.

CAMELLIA MADAME A. VERSCHAFFELT (*L'Illustr. Hort.*, t. 546).—A handsome variety, with ample leafage, the flowers large, pale flesh, with red stripes and numerous faint red lines.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF CHRYSANTHEMUMS.

Best six marked *, best twelve marked †.

Fifty incurved, suitable for exhibition.—Abbé Passaglia, Alfred Salter, Antonelli, Beauty, Bella Donna, Bernard Palissy, Beverley,†* Boadicea, Celestial, Cherub, Dr. Brock, Duchess of Buckingham†, Duchess of Wellington, Fabius, Florence Nightingale, General Bain-

brigget, General Harding, General Slade†, Globe,

Golden Ball, Gloria Mundi, Golden Beverley, Golden Eagle,

Grand Lodge Rival, Hereward†, Hercules†, Her Majesty†*, Ionat†,

Iago, Ion, Jardin des Plantes†*, John Salter†*, Josiah Wedgewood†,

Lady Harding†*, Lady Carey, Lady Slade, Mr. Brunlees, Mrs. G. Rundle,*

Mrs. Brunlees, Mrs. Haliburton, Oliver Cromwell, Prince Alfred†,

Prince of Wales, Princess of Wales, Rev. J. Dix, Rifleman, Robert James, Sir Stafford Carey, St. Patrick, White Queen.

Thirty incurved and reflexed, suitable for specimen plants.—Almat†, Dr. Sharp*, Aurea multiflora, Bixio (syn. Beauté du Nord)†*, Cardinal Wiseman, Chevalier Domaget*, Christine†* Dido, Fair Rosamond, Garibaldi, Golden Cluster, Golden Christine†, Her Majesty, Iago, Jewess, Julia Grisi, Julia Lagravere, Little Harry†*, Lord Clyde, Lord Palmerston, Madame Poggi, Mont Etna, Mont Vesuvius†, Pelagia†*, Prince Albert†, Progne, Sam Slick, Sparkler, Titania, Vesta†, White Christine†*.

Fifteen large Anemones.—Emperor, Empress*, Fleur de Marie*, George Sand*, Gluck*, King of Anemones*, Lady Margaret, Louis Bonamy, Margaret of Norway, Mrs. Pethers, Prince of Anemones, Princess Marguerite, Queen Margaret*, St. Margaret.

Thirty Pompones.—Adonis†*, Aigle d'Or, Alex. Pelet†, Andromeda†, Aurore Boréale†, Bob†*, Danaë, Diana, Drin Drin, Fairest of the Fair, Florence, General Canrobert†*, Hélène†, Julia Engleback, L'Escarboucle, Little Beauty†, Madame Fould†, Madge Wildfire, Miranda, Miss Julia, Miss Talfourd, Mrs. Dix, Mrs. Turner, President Decaisne, Rose d'Amour, Rose Trevennat*, St. Justia, Salaman†*, Little Gem, White Trevennat*.

A SELECTION OF FIFTY SHOW DAHLIAS.

Light.—Miss Henshaw, Umpire, Mrs. Piggott, Peri, Charlotte Dorling, Anna Keynes, Alexandra, Princess, Lotty Atkins, Mrs. Thornhill, Harriet Tetterell.

Yellow and Orange.—Chairman, Hugh Miller, Mr. Boshell, Charles Turner, General Jackson, Fanny Purchase, Willie Austin, Golden Admiration, Leah, Queen of Primroses, Lady M. Herbert, Mrs. Wyndham, Bullion, Annie Austin, Vice-President.

Crimson and Red.—John Keynes, Triomphe de Pecq, British Triumph, Bob Ridley, Edward Spary, Marquis of Winchester.

Purple and Maroon.—Andrew Dodd, Lord Derby, Earl of Pembroke, Favourite, George Wheeler, James Backhouse, John Sladden, Paradise Williams.

Lilac.—Juno, Jenny Austin, Lilac Queen, Criterion, Freemason.

Dark Tipped.—Norah Creina, Pauline, Queen Mab, Prospero, Fanny Sturt.

BEST BEDDING DAHLIAS.

Light.—Queen of Whites, Alba floribunda nana, Rawling's White Bedder (new),
Yellow.—Pluton, Duke of Newcastle, Golden Bedder, Golden Ball, Titiens,

Leah.

Striped.—Mrs. H. Holborn, very fine.

Scarlet.—Beauté de Massifs, Ranunculæflora, Scarlet Tom Thumb, Sir J. Watts.

Rose and Lilac.—La Belle, Rose Gem, Scarlet Gem, Blonde, Amata.

Crimson and Purple.—Tom Thumb, Captain Ingram, Gem of the Dwarfs, Crimson Gem, Crimson Dwarf, Royal Purple, Zelinda, Gladiateur, Sambo, Floribunda.

A SELECTION OF POMPON OR BOUQUET DAHLIAS.

Annie, Little Darling, Little Dear, Little Mistress, Little Naiad, Little Philip, Little Puss, Tom, Rover, Bessie, Lina Fairy Child, Pet of the Village, German Daisy (good bedder), Pretty Polly, Pretty Gem, Conqueror, Crimson Beauty, Little Wag.

A SELECTION OF THE BEST FUCHSIAS.

Arabella (early), Harry George Henderson†, Lizzie Hexham*†, Ben-e-Gloe, Beauty*†, War Eagle*†, Enoch Arden†, La Favourita†, Lord Elcho, Rose of Denmark, Lucy Mills, Mlle. Tietjens, Minnie Banks*, Prince Alfred†, Father Ignatiust, Conspicua*†, Puritani, Blue Beauty, King of Doublest, Brilliantissima*†, Killiecrankie†, Alba coccinea, Extraordinary, Carry Symes (largest white corolla known).

A SELECTION OF GLADIOLI FOR GROUPING.

Aristotle, Brencleyensis†, Bowiensist, Chateaubriand, Cardinalis, Courant, fulgenst, Daphne, Don Juan†, Dr. Andry†, Fanny Rouget†, Formosissimus, Floribundus, Gil Blas, Gandavensis†, Impératrice†, Janire†, John Bull†, Madame Cruidere, Mars†, Mons. Blouett†, Mons. Vincheon, Mons. Georgeont, Queen Victoria, Triomphe d'Enghein.

HORTICULTURAL AFFAIRS.

EXHIBITIONS OF SPRING FLOWERS.—The first show of the season was that of the Royal Horticultural Society, on the 14th of March. This was followed by the continuous exhibition of Messrs. Cutbush and Son, Highgate Nurseries, in the garden of the Royal Botanic Society, Regent's Park, from the 21st to the 28th. This, again, was followed by the continuous exhibition by Mr. William Paul, of Waltham, in the garden of the Royal Horticultural Society, Kensington, from the 28th of March to the 4th of April, and which, therefore, is open at the time of the publication of this notice. There has been held, in St. George's Hall, Liverpool, an exhibition of Hyacinths and Spring Flowers, which proved successful, both in respect of the quality of the subjects exhibited, and the support accorded by the public. At these several meetings the principal trade exhibitors were Messrs. Cutbush and Son, Highgate; Mr. William Paul, Waltham Cross; Mr. Davies, Liverpool; and Mr. Cutbush, jun., Barnet. In the Amateur classes, Mr. Steel, of Hammersmith; Miss Wilding, of Euston Road; and Mr. Wiggins, of Isleworth, have been the most successful.

The varieties of *Hyacinths* that have taken the highest awards at these several Exhibitions were:—Florence Nightingale, Gigantea, Le Prophète, Mrs. Beecher Stowe, Von Schiller, La Grandeur à Merveille, Mirandoline, Snowball, Argus, Baron Von Tuyl, Grand Lilas, Marie, Haydn, Lord Palmerston, Feruck Khan, Garibaldi, King of the Blues, Solfaterre, Schiller, Macaulay, Mont Blanc, General Havelock, Koh-i-Noor, Charles Dickens, and Garrick.

New Hyacinths.—Mr. W. Paul brought forward *Byron*, fine large light blue bells and good spike; *Autocrat*, deep purplish black, fair-sized bells and spike, in

the way of General Havelock; *Grand Monarque*, cerulean blue, large bells and good spike; *King of Yellows*, fine creamy yellow, good bells and large compact spike—this is a great acquisition to its colour; *Eclipse*, a fine bright red, with fair size bells, but small spike; *Clio*, lilac, with white eye. Messrs. Cutbush and Son brought forward *Tescha*, mauve, well-shaped bells and spike; *Von Siebold*, blue, fine large bells; *Prince Alfred*, red; *Vulcan*, black, fine large bells and good spike; *Bijou Céleste*, white, immense bells; *Luna*, pale primrose-yellow, fine.—*Six kinds introduced since 1865*.—Mr. W. Paul took a first place with *La Grandesse*, white, large spike; *La Grande Ressemblance*, pale lilac blue, fine bells and spike; *Sir Henry Havelock*, good; *Mirandoline*, bright red, close spike, bells rather small; *L'Espérance*, blue, fine large bells. Messrs. Cutbush and Son exhibited *Sadowa*, light red or pink; *La Mignonne*, white, fine double; *Johnson*, blue, good; *Goldfinch*, fine creamy yellow, large bells and spike; *Prince Albert*, dark blue, double.

On the new and old *Early Tulips* we shall report next month, as, up to the time of making these notes, the only varieties shown in fine condition were Proserpine, Fabiola, Van der Neer, Pottebakker, Vermilion Brilliant, and Keizerkroon.

Forced Roses, both in pots and as cut flowers, were a great attraction at Kensington, and sufficiently abundant to show that the fame which Messrs. Paul and Son, of Cheshunt, have so justly acquired for the culture of this beautiful flower is not likely to be diminished at present. Their contributions consisted of a fine group of plants in 11-inch pots, just the proper kind of plant suitable for a private conservatory, and several boxes of beautifully fresh flowers. The principal kinds in pots were Alba rosea, Princess Mary of Cambridge, Dr. André, Gloire de Dijon, Fisher Holmes, Céline Forrestier, Lord Raglan, Camille de Bernardin, Madame Caillat, President, Madame Fillion, Pierre Notting, Victor Verdier, and other good kinds. Messrs. Lane, Great Berkhamstead, contributed a fine collection in small pots, principally 32-size, of the leading kinds. In the way of cut roses, Paul and Son sent a box each of Alba rosea and Maréchal Niel, and several boxes of the best kinds most suitable for forcing, such as Abel Grand, Charles Margottin, Madame Victor Verdier, John Hopper, Lælia, Louise of Savoie, Sénateur Vaisse, Anna de Diesbach, Duke of Wellington, and several others.

INTERNATIONAL EXHIBITION AT GHENT.—This commenced on the 29th of March, and will be continued to the 5th of April. The display of plants remarkable for fine foliage, such as palms, dracænas, cycads, ferns, etc., was the most remarkable feature; but the Exhibition, considered as a whole, was highly creditable to its promoters. Our esteemed Correspondent, M. A. Verschaffelt, poured the treasures of his plant-houses into the exhibition, and acquired many well-earned honours.

FINSBURY PARK AND SOUTHWARK PARK, both situated in the suburbs of London, are now in course of construction under the auspices of the Metropolitan Board of Works, from designs supplied and superintended by Mr. A. McKenzie, the garden architect at Alexandra Park.

THE SEASON is remarkably forward, and the winter having been unusually mild, vegetation in the southern parts of England was full three weeks in advance of its usual condition at the end of March. Some curious phenomena have been recorded, such as pear trees not yet in bloom and apple trees not yet in bloom, but in full leaf in the same garden. Many trees across which the strong sunshine of mid-March passed partially came into full leaf on one side while they were quite dormant on the other. Three years ago we suggested the likelihood that this would be a good year; it has certainly begun well, but we know nothing of the future. However, we do not hesitate to repeat our belief that 1868 will be a good year, and we close this paragraph with a remark we have made every year since the commencement of the FLORAL WORLD, that to observers of minute particulars every year is in some way or other extraordinary.

STAMFORD ROSE SHOW.—This will take place as usual in Burghley Park; the date fixed for it is the 9th of July. The schedule is liberal, £10 being offered for the best 72 single trusses, and £6 for 48 single trusses (amateurs). The committee invite contributions of fine foliage plants, etc.

TO CORRESPONDENTS.

Miss P., Leamington.—It was Palmer's common palm candle burning in a spring tube. To make sure of the correct thing to begin with, it would be well to order in the first instance of Mr. Collsell, oil and Italian warehouse, Bishopsgate Street Within, London, E.C. Having thus made a proper beginning, the tradesmen in your own district can provide further.

A. B. S.—Do not waste a drop of the stable drainage, pour it undiluted on vacant ground at any time, and apply it to growing crops, such as celery, cauliflower, and other things that like good food, diluted with five times its bulk of water. A market gardener would make his fortune with a good supply of such a fertilizer.

Hill Cottage, Brixton.—Your tree is an *Aralia*, but from a single leaf we cannot say for certain what species. It is probably tender, and we would not risk it out of doors until you have at least a second plant. The leaf sent very closely resembles that of *A. digitata*.

Lover of Flowers, Bangor.—The plant is *Ceanothus azurea*.

HIBBERD'S PROLIFIC MARROW.—*C. C. C.*—The description of this new variety of vegetable marrow in Barr and Sugden's catalogue is quite correct, but much more might be said about it. Marrows are sometimes grown in pots, and for such a purpose this variety is admirably adapted. Its principal characteristics are dwarf compact growth, very early and abundant fruiting, and the fine flavour of the fruit when cooked in a quite small state. Large marrows are inelegant, and quite unfit for a good table, but these may be served the size of a turkey's egg, and are both elegant and delicious. Fruit may be cut from this variety three weeks earlier than from any other, as it begins to fruit immediately after it is planted out.

Mrs. Young did not accompany her note with any specimen of the plant which forms the subject of her inquiry.

VERONICA.—*Cryptomeria elegans* is quite hardy, and will be likely to thrive best in poor sandy soil. It may be propagated from cuttings in summer, but we should prefer seeds if we could get them. The best of all garden tiles and edgings are those made by Messrs. Rosher, Queen's Road West, Chelsea, S.W. Tritomas do not usually flower till three years old from seed. We have been labouring for years to meet the case you put in reference to your beds; surely if you read you will meet with much of the very information you want. However, the series on "Rough and Ready Gardening" is designed expressly for persons circumstanced as you are. The new leaf we will think about, but at present there are *two* flaming swords, and very useful they are.

MINTON'S TILES.—I have just been laying down Minton's tiles in my conservatory, and unless they are washed every alternate morning, they get coated with a white substance. I think it is alum. Can you suggest any remedy for this? Where the hot-water pipes were buried, the tiles became very dirty, as if dog's dirty feet had gone over them. These were taken up, and space left for the air to pass round the pipes, and then relaid, but they still have the same dirty appearance. What can I do to get rid of it? Round the centre bed in the house the builder has put Minton's upright stone-coloured border tiles, and after doing half, he discovers he cannot get any more of them at the works, or elsewhere. Can you, or any of your readers, tell me where I could find 100, or advise me what I had best use as a substitute?—*A. B. S.* [We suppose the white substance to be an efflorescence of salts of lime—a common occurrence in the first use of tiles and artificial stone, which ceases after a few months. The dirty appearance we cannot account for, and should suppose the tiles had been soiled in some way without your knowing it. One of our friends was in just the same fix as yourself through having laid down a number of tiles, and then being unable to obtain sufficient to finish the job. Can any of our readers assist "*A. B. S.*" in this matter?]

RETINOSPORA ERICOIDES.—By this post I send you a branch of *Retinospora ericoides*. All my plants of that species are affected with the same kind of disease, which is apparently owing to some kind of vegetable fungus. It commences with one or two of the leaves turning white, the disease slowly proceeding until the whole branch becomes implicated, and if allowed to continue any length of time, the woody part, when cut with a knife, presents a moist, brown appearance; in fact, becomes quite rotten. Mr. Standish, last autumn, told me that he had never

met with the disease, but perhaps that is owing to the peat and sand, which is, I believe, the general staple of the soil at Ascot. Perhaps, on examination, you may be able to determine the nature of the disease, and suggest some remedy. This disease seems to affect *R. ericoides* in most of the gardens in the neighbourhood of Canterbury. A line in your notice to correspondents on the subject would oblige, J. J. [All the Retinosporas have behaved badly on our heavy loam at Stoke Newington. We made a bank expressly to plant out a lot of the choicest conifers of small growth, and in three years it became unsightly, and we destroyed it; that was owing chiefly to the decay of these pretty little trees. In all our travels we have not yet seen a plantation of them doing well. The cause appears to lie in a certain tenderness of constitution; severe frost ruptures the tissues, and soon afterwards they become a prey to fungus. While they are under strict nursery treatment they appear to do well, but they are apparently unable to rough it when planted out, and left very much to themselves. Their colours and characters are so peculiar that their frequent failure is especially a matter for regret.]

THE CHRISTMAS ROSE.—*H. C. P.*—It is but little we can add to the advices given at page 4, but we will try. We first call to mind that at Stoke Newington there are a few plantations that are grown expressly to cut flowers from for Covent Garden Market. All these are in the stiff loam or clay common to the district, and the very best plantation of all is shaded by tall trees. Let us speak of this best lot first. The plants have been where they now stand about fifteen years, and the attention they have consists in an annual mulching with rotten dung early in the spring, and hand-glasses placed over them about the end of November to help on the flowers, and preserve them unsullied for the market. We have seen hundreds of them gathered before Christmas, and they look like miniature water-lilies. There is another way of treating them that deserves notice. They are divided into small pieces in March, and planted in rich soil one foot apart every way, and well supplied with water all the summer. A shady situation is certainly to be preferred, but an open quarter in the full sun will not be detrimental to them if the ground is deep and rich, and the watering is never neglected. In September the strongest are taken up and potted in as small pots as they can be got into, and are left exposed to all weathers until the end of October. They are then introduced to the coolest part of a forcing-house, and it is found that they do very well on the floor under the stage or bed, requiring but little light. Here they soon begin to flower, and when all the flowers are cut they are taken back to the pit, and are planted out in April, and are not forced the next season, but allowed to bloom naturally, and after the flowering is over, they are parted and planted out as before. The second season another lot is taken up from the original bed, and in this way with one and two year old plants the flowers are obtained abundantly every winter. In this district the common Christmas rose (*Helleborus niger*) never blooms till the end of February or beginning of March, unless forced or assisted with hand-glasses. The following are fine species:—*H. olympicus*, *H. atrorubens*, *H. colchicus*, and *H. orientalis formosa*. All these may be obtained of Messrs. E. G. Henderson and Son, St. John's Wood.

VEGETABLE MARROWS.—*C. P.*—The large growing kinds are objectionable; at all events they are not fit for a gentleman's table. The best kind undoubtedly is Hibberd's Prolific, which Messrs. Barr and Sugden are now offering seed of at a shilling a packet. This produces an abundance of small fruits immediately after being planted out, and has the full flavour of the best of marrows if cut when the size of a turkey's egg. Three or four of them make a most elegant side dish. To grow marrows well sow in March or April, and put the pans on a hot-bed or on a flue. When the plants have three or four rough leaves each, pot them singly or in pairs, and treat them to a warm place until the middle of May, and then put them in frames. At the end of May or first week in June plant out on a bed prepared for them. The best way to prepare the bed is to take out the soil a foot deep from a four-foot breadth, which may be as long as you please. Lay the soil up on each side in a ridge. Fill the four-foot bed with two feet depth of half rotten dung. It must not be rotted to powder, such as we use for potting, and it must not be long, rank, and hot, such as we call "green." But if half-rotten, such as we should use for dressing grass land, and for digging in amongst roses, it will ferment in the bed, and cause a steady bottom-heat. Having made a bed two feet deep of this good stuff, return the soil that was taken out, spreading it over the

manure, and in this soil plant the marrows. If the plants have been much exposed previously, and the weather is mild, they will want no further care. But if the plants are rather delicate, or if the weather changes to cold, put empty flower-pots over them every night, or better still, keep hand-glasses over them night and day until they are so much advanced as to be capable of bearing full exposure. Vegetable marrows may be grown on a much more simple plan. Sow the seeds two together in the open ground, six feet apart every way, and take no more notice of them. In due time gather the fruit. The careful way is the best, and pays well; in fact, there is nothing that pays better for good culture than the vegetable marrow.

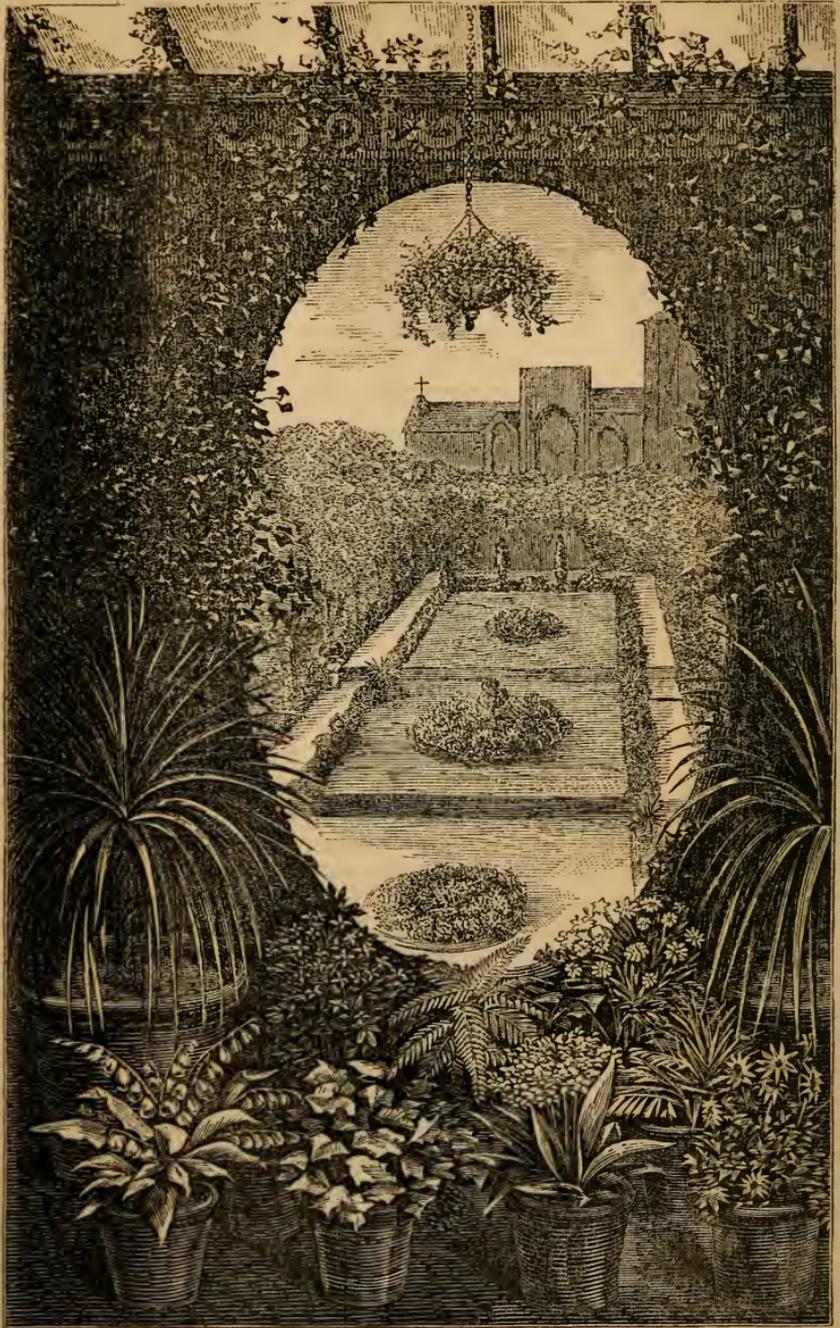
ZONAL PELARGONIUMS AS ANNUALS.—*C. C.*—Sow the seed immediately in a mixture of equal parts loam and leaf-mould, using large shallow pans. Put these pans in a stove or propagating house, or on a flue. When the plants have three or four leaves each, pot them singly in thumb pots. When these pots are full of roots, shift to 60 size; when these are full of roots, shift to 48 size, and in these let them flower. Keep them all under glass, and very close to the glass until the flowers appear.

SHADED HEDGE.—*Anxious One.*—If the hedge is not used for a boundary, the best way to deal with it would be to destroy the greater portion, only leaving such patches as will harmonize with the general plan of the garden. Then plant the bare places with clumps of holly, box, and aucuba, so as to give to the line of the hedge the character of an irregular plantation, with here and there some bold clumps in advance of the general line. *Berberis repens* will make a good foreground subject, as it does well under trees. Before the planting is done, the ground must be deeply trenched, every particle of weedy and rooty material be thrown out and burnt, and the ashes spread over the soil. Then put on a heavy dressing of rotten dung, and dig it over again, and plant. Add to former notes on creepers for south sides, *Clematis vitalba*, *C. flammula*, *Aristolochia siphon*, and Ayrshire Roses.

CULTURE OF HYDRANGEAS.—*Harry.*—We grow a great number of Hydrangeas in the same way as *Fuchsia coccinea*, and such things out of doors. We plant in deep loam on a shady border, and give abundance of water all the summer. In autumn they are cut over close, and mulched with leaves to protect from frost. In spring they throw up strong shoots, and flower as freely as a Monkshood or a *Dielytra*. The shoots require a little thinning, to give shape to the plant and strength to the bloom. For pot culture, Hydrangeas may be struck at any time; and nothing roots with more certainty if young side-shoots are taken and put in sand, with a little bottom-heat. Old ripe shoots will strike in the open air, but take longer. The best soil is one-third rotten dung, one-third leaf-mould, and one-third strong loam; the pots to be well drained, and the plants to have plenty of water. Weak manure-water promotes the formation of fine heads of bloom; cuttings struck in summer, and grown in a greenhouse, and stopped in the autumn, will flower early the next season; and there is no plant more certain to bloom freely, if the wood is well ripened in the autumn. For bedding-plants, the shoots containing bloom-buds may be taken off, and struck with a moist bottom-heat, and then bedded out to bloom; they manage them this way at the Crystal Palace. When in active growth, it is almost impossible to give too much water.

GREEN-FLY.—*Alpha.*—To fumigate your small pit take a 24 sized pot, and fit within it a piece of old tile, such as is used for covering smoke flues, or, better still, a piece of iron one inch thick and three inches over. Get a quarter of a pound of strong shag tobacco, and soak it in a strong solution of saltpetre, and when quite dry, make the tile or iron red-hot, drop it into the pot, place the tobacco on it, and shut the pit close, so that none of the smoke can escape. Leave it so all night, and in the morning syringe the plants. A week after repeat the process if it appears to be necessary, and you will be free of fly for months afterwards. Two smokings are better than one, because there is usually a second crop of fly produced by such as escaped the first smoking.





PLANT-HOUSE AND GARDEN VIEW AT THE RESIDENCE OF F. T. HAY, ESQ.,
NEW CROSS.

THE FLORAL WORLD

AND

GARDEN GUIDE.

MAY, 1868.

A BEAUTIFUL TOWN GARDEN.



IN the FLORAL WORLD of December, 1866, a plan and description of the elegant garden of James Crute, Esq., of Holloway, were presented to our readers. The example now to be considered forms what may be termed a companion to Mr. Crute's, though in a quite different style, but because of the completeness and unity of the scene produced, and the similarly limited area of operations. On the opposite page is a representation, admirably drawn by Mr. Damman, yet falling far short of the beauty of the reality, of the garden of F. T. Hay, Esq., New Cross Road, near London. It is the more worthy to be represented, because both house and garden are like thousands of others in respect of situation and dimensions in the suburbs of London and all great towns, a substantial villa residence with small plot of ground in the rear, and on every hand a contracted prospect of similarly restricted gardens bounded by an horizon of bricks. With the most commonplace site and materials, Mr. Hay has produced a charming scene, and moreover has made it accessory to the residence, in a quite novel and pleasing manner, as will be clearly understood, we hope, by a brief description. But before describing the garden, it will be proper to say that in the rear of the residence there are a few glass structures, eminently attractive in appearance and ingenious in design. One of these is a small conservatory, opening from a cosy smoking-room. The guest may here sit beside the fire and look direct into a covered garden, furnished with camellias, dracænas, and other noble forms of vegetation. When the length of the conservatory has been traversed, we turn to the left, and *look down* into the midst of a charming fernery, which is constructed at a lower level than the conservatory, in the character somewhat of a cave, and the effect of a luxuriant vegetation of ferns and lycopodiums seen from above is at once novel and delightful. We are so accustomed to look up, and while suffering pain in the neck, see more of the pots than the plants, that to look down into a dell all mossy, green, and dank, overarched with the fronds of Wood-

wardias, and carpeted with knolls of scolopendrium and selaginella, affords a new sensation. When we have descended the short staircase, the spell is greater than before—the ferns surround us and form a green chequered roof overhead, and the splashing of water contributes no less to their health and freshness than to the completeness of the delusion that we have found our way at last to a fairy grove, such as Egeria herself might inhabit.

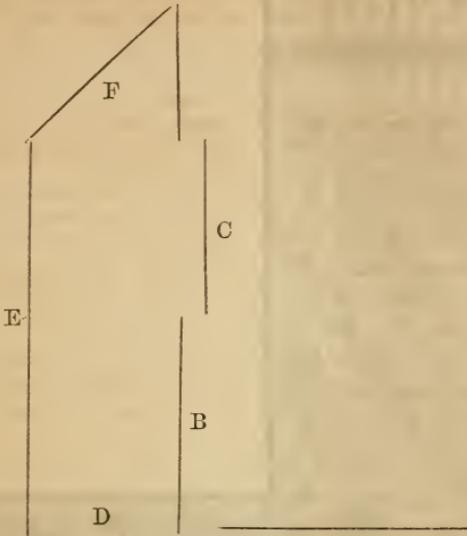
“The mosses of thy fountain still are sprinkled
 With thine Elysian water drops : the face
 Of thy cave-guarded spring, with years unwrinkled,
 Reflects the meek-eyed genius of the place,
 Whose green, wild margin now no more erase
 Art's works ; nor must the delicate waters sleep,
 Prison'd in marble, bubbling from the base
 Of the cleft statue ; with a gentle leap
 The rill runs o'er, and round, fern, flowers, and ivy creep.”

To describe the construction or contents of these interesting embellishments of the residence is not intended now ; it was simply impossible to refrain from alluding to them, because they are not merely receptacles for plants, but actual extensions of the chambers, gardens under glass, enjoyable at all seasons without wetting the feet or breathing the external air, and contributing in great measure to the enjoyment of life within doors, without any of the usual vexations such as damp and loss of light, which are common defects of conservatories immediately connected with dwelling rooms.

And again, before entering the garden, we must call attention to a plant-house, for it is in part represented in the picture. Originally, the windows of the dining-room commanded a rather extensive view, laterally, of the adjoining gardens and far-off houses. Mr. Hay determined to improve the view by contracting it, and the result is a very ingenious arrangement. To furnish the reader with a clear idea (if I should be so fortunate) of the arrangement, I will suppose the windows removed, and a glass partition substituted, so as to make the objectionable view still more extensive and objectionable. Next, at some six or eight feet beyond this glass partition, construct a wall, which shuts out the view altogether. Next, place on the summit of this wall glass lights sloping up to the wall of the house above the partition, and you have what we may call an annexe, or miniature lean-to plant-house. To prevent mistakes in the conception of the scheme, let us, as heretofore, resort to a few printer's lines.

In this arrangement, A represents the interior of the dining-room, B the wall of the house, C the glass partition in the place of windows, D the lean-to plant-house, E the outside wall of the plant-house, F the glass roof of the plant-house. As things now stand, the dining-room is, of course, rather dark, for the only light which reaches it is supplied indirectly from F through C, and there is no view of the garden at all. But there is just something remaining to be done. In the centre of the wall, E, make a large oval aperture ; fix this with glass, make of it, in fact, a window with one sheet of glass, then furnish the plant-house in a suitable manner, and

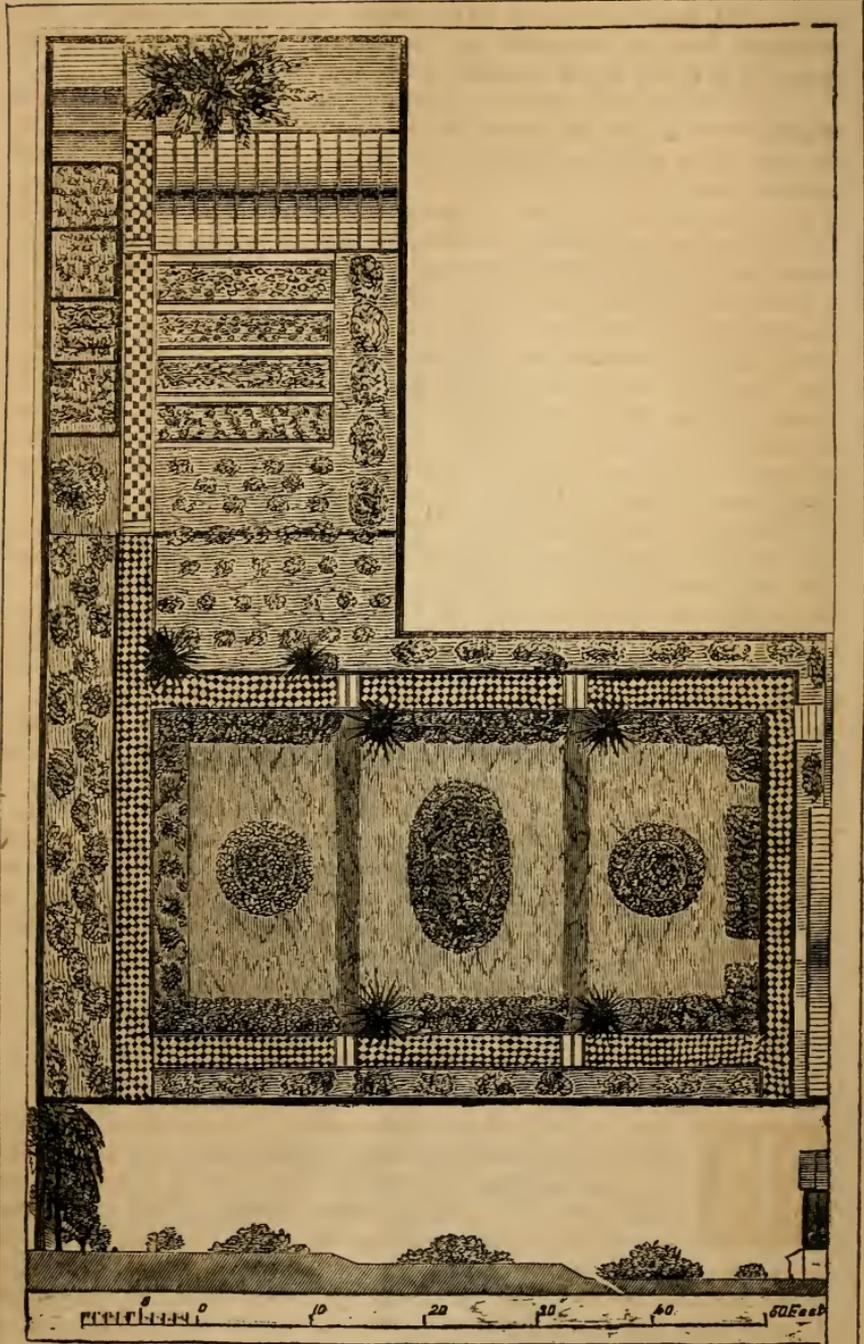
the result is such a view from the dining-room as Mr. Damman has endeavoured to reproduce for the entertainment of our readers. Now, is not this a novel affair? I am bound to say that I was as



much surprised as delighted with it when I first saw it, because the colouring of the whole scheme is as rich and tasteful as its configuration, as I hope to show next by a short description of the garden.

As the plan stands on the page, the portion of the garden seen from the oval window is the lower cross-piece, which is marked out in three distinct compartments, with oval bed in the centre, and in the other two compartments circular beds. The other portion passes up in the rear of the gardens of the adjoining houses. At the foot of the page is a section of what may properly be called the promenade garden. The section will show that the garden, lengthwise, is laid in three levels, rising in succession from the window to the rear, where the boundary consists of a border of trees; and, fortunately, beyond this is a church, which considerably improves the prospect.

Mention has been made above of the beauty of the colouring of this scene as viewed from the oval window. This will be understood from what follows. The three levels of turf consist of *Spergula pilifera*, the smoothness and vivid emerald green hue of which, when well kept, surpasses the best grass, much as grass in good condition surpasses docks and daisies. Here is a case as rare as it is delightful, of *spergula* having justice done it, for it has not a break, a worm-cast, or a tuft of weeds to mar its uniformity of velvet smoothness and softness; and the two little slopes where the levels change afford agreeable lines across, which—without any trickery, for there is none—add considerably to the apparent dimensions of this little plot,



GROUND PLAN OF GARDEN OF F. T. HAY, ESQ., NEW CROSS.
 (Scale 20 feet to 1 inch.)

which, the scale shows, is only seventy-two feet in length. The principal feature, therefore, is the central lawn of bright green spergula in three levels, on each level a centre bed.

Another distinct element of colour is afforded by the walks, which, instead of being formed of gravel, are laid with Minton's tiles, in deep red, buff, and black. Where the levels change, there are shallow stone steps. The result of this arrangement is a sharp, bright, formal, but rich and pleasing boundary, most appropriate to the general plan, indeed, essential, for gravel would have been too commonplace for so novel a scheme. The furniture of the garden is a matter of less importance, except that it should be said some noble yuccas, placed in pairs on either side of the lawn, add to its distinctive features and appearance of finished and artistic richness. For the rest, there are shrubs, trees, and flowers in plenty; and to describe them in detail would be to enter into the subject of town gardening generally, which is not our object now. The main features may have an interest for many of our readers, and we trust that our brief description of them will be found sufficient.

The other portion of the garden is occupied with beds of tulips and other florists' flowers, plantations of raspberries, a few auricula frames, a small pit for preserving bedding-plants, a useful greenhouse, and some other things of minor importance. But amongst the minor matters, it is worthy of remark that in one of the borders is a nearly complete collection of sweet herbs, so that, at a moment's notice, the house can be supplied with a tuft of fresh thyme or marjoram, a bunch of mint or parsley, etc., etc. In how few small gardens are such useful things attended to; yet how simple a matter to have always close at hand nearly everything of the kind commonly in use; and the more necessary, because the want of such things cannot be always foreseen greatly in advance. We do not expect for a long time to meet with a small garden which, by its distinct and peculiar beauty, shall afford us so much pleasure as we have derived from an inspection of Mr. Hay's. S. H.

THE HERB GARDEN.



T may sometimes strike a reader of horticultural periodicals that the most interesting subjects have been used up, and there is nothing left for writers but to repeat themselves, or take up useless themes. But here is one on which almost nothing has been written. Scarcely anywhere amongst books on gardening shall we find information on those useful subjects, mint, parsley, thyme, sage, and the rest of the things that may be collectively termed "Kitchen Herbs." It is the rule in families generally to purchase these things, or at least some of them, in the summer, and they are hung up in bunches to dry, to be always ready for use. It is, however, far preferable to have in the garden, and near at hand, a little of everything in this

way, so that, at a moment's notice, a supply may be obtained for use *in a fresh state*.

The month of May is the best time in all the year for the formation of a herb-garden. For all the woody aromatic plants required for flavouring soups and meats, such as thyme, sage, etc., a dry, sunny, sandy bank is the best situation possible. The fragrance and flavour of these plants are much enhanced by a dry, rather poor soil, and full exposure to air and sunshine. A bank appropriated to such things might be made very pretty, for all these plants are at least sightly; some few of them, as, for example, lemon thyme and marjoram, are beautiful. It is quite proper for the gardener to have a plantation of these useful subjects, in order to supply quantities when required for drying, or for the preparation of any cosmetics, or other purposes; but it is desirable there should be a small, and we may call it a private, plantation, so situated that the ladies of the household may be able at any time, without difficulty, to obtain small quantities of such herbs as they require. Therefore it is we recommend the formation of a bank, in a sunny spot, to be planted with all such herbs as will thrive on it, and to be made as ornamental as possible; to which end may be added a few Provence Roses for the scent-jar, a few common Major Tropæolum (*vulgo* Nasturtium) for pickling, a Sweet Bay for flavouring custards, one or two trees of Variegated Rue, which is just as good as green rue for medicinal purposes, and *Calycanthus floridus*, for its spicy flavour; with whatever else may be deemed suitable for the situation. It must be remembered, however, that all the aromatic herbs in common use will not thrive alike on a dry, sunny, sandy bank. Some require a deep, moist, rich soil, and of this class parsley and mint are notable examples. Places for such as these should be found independent of the supplies the gardener may be able to furnish, for they may be wanted when there is no one at hand to obtain them, and the kitchen-garden may be too far away for a journey in wet weather. I cannot, of course, predicate the wants of every household; but, having found it greatly to conduce to domestic comfort to have herbs of all kinds scattered about the pleasure-garden, though we have a complete and rather large collection of them all in their proper place, I propose these plans for the good of others; and I have only to beg of each reader to accept, modify, or reject, as a consideration of individual circumstances may render advisable.

ANGELICA (*Archangelica officinalis*).—A coarse-looking plant of the Umbelliferous order. It grows five or six feet high, and requires a deep loamy soil and a damp situation—suitable, in fact, to plant out beside a lake or river. The stalks have a warm aromatic flavour; when candied with sugar, it is considered scarcely inferior to ginger as a carminative and stomachic stimulant. The root may be prepared in imitation of preserved or pickled ginger. In the north of Europe it is much used, and is believed to have the property of prolonging life. Angelica may be raised from seed, but it should be sown as soon as ripe. If seed is not obtainable, secure a plant, suffer it to seed, and sow the seeds as soon as they begin to fall, and a fine stock of plants will be the result. The plants usually die

after their seeds are ripe; but, if it is desired to keep them for several years, the flower-stems must be pinched out as soon as they are visible in spring.

ANISE (*Pimpinella anisum*).—A half-hardy annual, used for garnishing or seasoning. Sow on the sunniest part of the border, in the first week of May, where it is to remain. The plants should be thinned, when up, to six inches apart. If seeds are wanted, it is best to purchase them, as they seldom ripen properly in this country.

BALM (*Melissa officinalis*).—This is a general favourite in the country, for its grateful lemon-like odour, and the refreshing drink which is prepared from it for the sick. It is a coarse-looking plant, growing two or three feet high. It will grow in any soil, but best in poor clayey stuff. Seed may be sown in April or May, but a quicker method is to obtain plants and part them. If required in any quantity the plants should be divided in September, and the pieces planted two feet apart.

BASIL.—Sweet Basil is *Ocimum basilicum*. Bush Basil is *O. minimum*. Both are tender plants requiring to be raised annually from seeds. To secure early supplies, the seeds should be sown on a hot-bed in March, and the plants should have the care usually bestowed on tender annuals, and be planted out at the end of May, on light rich soil. If there are no conveniences for raising plants under glass, sow the first week in May on a sunny bank, and the plants will appear in the early part of June. Basil is used in soups and salads, and some prefer it to flavour peas, instead of mint. If strong plants are put out at the end of May, seed may be obtained in September, but seed imported from Italy is far better than can be ripened in England.

BORAGE (*Borago officinalis*).—A rough-leaved rustic annual, producing the most lovely blue flowers. Sow in March, April, May, June, and September, to have a succession. The young tops have the flavour of cucumber, and are used in the preparation of a "cool tankard." In case of a scarcity of summer vegetables, the young leaves may be cooked as spinach. Bees are very fond of the flowers, and a rough piece of ground, not wanted for any particular purpose, might be sown all over with borage, both for the bees and to give a cheerful air to what might otherwise be quite a waste.

BUGLOSS (*Anchusa officinalis*).—This is a rather coarse plant, with blue flowers in clusters at the summit. The poorer the soil, the neater the growth and the longer it lasts. If sown now, on a sunny bank, it may be reckoned to last two years, and then will probably die, and leave behind it a great progeny of plants from seeds self sown. When it grows in sheer rubbish or between the bricks of an old wall it lasts many years, but in rich soil it becomes an annual. It has much the same properties as borage, and was anciently esteemed as a cordial. It is quite a question to me if of any use at all, but though a rustic plant, it is pretty.

BURNET (*Poterium sanguisorba*).—A pretty plant, requiring a very sunny poor dry soil, doing well on sand, chalk, or bricklayers' rubbish. Sow the seed in March, April, and May, or multiply by

division of roots, or by slips. Sometimes the seed will remain in the ground a year before germinating. It is used in cool tankards, soups, and salads, and in my opinion spoils them all by its bitterness, but "every one to his taste."

CHERVIL (*Chærophyllum sativum*).—Also known as SWEET CICELY. A hardy annual, requiring a dry, sandy, or chalky soil fully exposed to the sun. Sow in March, April, May, and August, the last sowing being left to stand the winter. It is used for soups, salads, and for garnishing.

CHIVES (*Allium schoenoprasum*).—This is a valuable salad herb, as it gives to a salad the piquancy and pungency of the onion, in a subdued form, and is unaccompanied by those properties which render onions so objectionable; wherever salads are in request chives should be handy. Plant a few small tufts and leave them alone one whole season, after which cut the tops as required, but do not injure the roots. Any soil will suit them, but a sunny position is essential. If used in place of onions for soups, divide the patches in March, and plant them out in patches of a dozen each, a foot apart every way, in good soil. Take up the roots in November, dry them in a shed or kitchen, and store away for use. As a rule onions are to be preferred for winter soups, but for almost any summer dish requiring an onion flavour, chives are invaluable.

CLARY (*Salvia sclarea*).—An annual plant, the seed of which may be sown in April and May on a dry sunny, sandy bank. Half a dozen plants will suffice for any family. It is said to be used in soups, sauces, and in flavouring wines for the sick, but I know nothing of any of its uses.

DILL (*Anethum graveolens*).—This is grown in quantities in some gardens, for the preparation of "dill water"; in others it is kept merely for flavouring soups and sauces, and for pickling. A dry, poor soil suits it, but it will grow in any rather light soil. The seed must be sown where the plants are to remain, and it is best sown as soon as ripe, for, if left till spring, it may fail to germinate. When grown in quantity, the seed should be sown in rows, a foot apart, and as they advance they must be thinned with the hoe to nine inches apart in the rows. As the umbels are valued as much as the leaves, the plant must be encouraged to flower. If the seeds are allowed to scatter themselves, a quantity of self-sown plants will appear the next spring, and these are sure to thrive, and furnish umbels in July and August.

FENNEL (*Anethum feniculum*).—Sow in April and May; better still, as soon as the seed is ripe in the autumn. The early spring or late autumn are the best times to plant. If a quantity are required, sow on a bed of light soil in autumn, in drills six inches apart. The next spring, as soon as they begin to grow, transplant them a foot apart. It may be propagated by pieces of the root. If allowed to ripen seed, it does not last more than three or four years; therefore, where only a few plants are grown for occasional use, it is advisable to cut out the flower-stalks as soon as they begin to rise in spring. As in some families this is much used to flavour sauces for fish, it is worth making a bed expressly for it. This should con-

sist of two or three loads of bricklayers' rubbish, in the form of a low mound, with a thin skin of any kind of loam on the top. It will, however, grow in any soil or situation, and is especially fond of chalk.

HOREHOUND (*Marrubium vulgare*).—It is best to obtain a root and propagate by slips, in a shady place; but seeds may be sown at any time. The best place for it is a dry sandy bank. It is a hardy herbaceous plant, much valued, when candied, for coughs and colds.

HYSSOP (*Hyssopus officinalis*).—A very beautiful plant, admirably adapted to adorn the dry, sunny, sandy bank. The *ezob* of the Hebrew writers has been the subject of almost endless controversy; in some of the texts it is probable that marjoram is intended. In Smith's "Dictionary of the Bible," Dr. Royle says that certainly the caper plant is sometimes meant. Our hyssop of the herb garden is a member of the Lipwort family, which is rich in aromatic plants, and is common in the southern parts of Europe. Sow in March, April, and May; or, better still, divide the plants any time in spring or September. They may be propagated by cuttings put under hand-lights all the summer. As the hyssop is a beautiful plant, I shall give the names of six kinds worth growing, all of which are aromatic:—*H. discolor*, blue and white flowers; *H. officinalis*, blue flowers; there is a variety called *rubra*, with red flowers, and another called *variegata*, with variegated leaves. *H. septemcrenatus* and *H. septemfidus* are worth having.

LAVENDER (*Lavendula spica*).—This well-known garden favourite thrives best in a sunny, open spot, on a sandy soil, but will live almost anywhere, even in a sooty garden in the midst of houses. Cuttings of ripe wood planted firm in October will grow freely the next spring. Cuttings of young shoots soon form roots under hand-lights in spring and summer. When grown in quantity, the best way to propagate lavender is to cut a lot of ripe shoots their full length late in autumn, and leave them laying in heaps on the ground, exposed to all weathers till February, and then to insert them three or four inches deep in sandy loam, in rows a foot apart, and four inches asunder in the rows. At the end of the season, transplant them all, or thin them, leaving part to remain. Gather lavender when the flowers are beginning to expand; it is then most rich in its aromatic fragrance.

MARJORAM.—The summer marjoram is an annual (*Origanum majorana*); the winter marjoram is a perennial (*O. heracleoticum*); common, or pot marjoram, is a perennial (*O. onites*). All the sorts may be grown from seeds sown from February to June; the winter and common marjorams may be raised from slips or divisions of the roots in spring and autumn. The soil should be light and dry, but good, such as would grow a cabbage or a lettuce. When grown in quantity, the seeds should be sown in drills six inches apart, and the plants be thinned to six inches apart, when large enough for the hoe. The perennial sorts should be planted out in autumn, a foot apart every way. A plantation lasts several years, if every autumn the dead shoots are cut away, the soil between them carefully

pricked over with a small fork, and a little fine earth is scattered amongst them. Gather, for drying, when the flowers are just beginning to open.

SPEAR MINT (*Mentha viridis*).—This invaluable herb loves a damp, rich soil, and should always be propagated by dividing the old plants, or by pieces of the roots. In every garden a plantation, however small, should be made every year, either in spring or autumn, and should be allowed to become strong before being gathered from. I grow a row always on the same ground with the peas, to be handy to put into the basket with them; and to secure early supplies in spring, have a few roots on a warm sloping border, raised above the general level. For winter use it can be forced without any trouble, and the simplest way is to take up some strong roots that have not been gathered from all the summer, and pot them or put them in shallow pans, or boxes, in rich soil. This should be done at the end of September, and the pots or boxes should be left out of doors fully exposed to the weather. Do not cut down the green shoots; leave them for the frost to destroy. When the frost has cleared away the tops, put the pans or pots in a frame, and after a week or two transfer one of them to a warm greenhouse or forcing pit, and in three or four weeks the new growth will appear. Continue to introduce other batches as required, preferring always to force slowly than rapidly. If six weeks can be allowed the shoots will be fatter, and the flavour richer than if forced in less time. If possible, leave a few pots full of roots in the pit or frame, as these will give shoots a full fortnight or three weeks earlier than mint can be gathered from the open ground. Water may be given freely to mint when forced, and it should be as near the glass as possible.

MARIGOLD (*Calendula officinalis*).—A showy annual, which should be grown on a dry, sunny bank, as although it will grow anywhere, it is never well flavoured when grown in rich, damp soil. Sow the seed where the plants are to remain; if in a piece, thin them to a foot apart. The thinnings may be transplanted if the seed-bed is not large enough for the supply of flowers required; the single dark-coloured flowers are the best for flavour. Gather the flowers when fully expanded, and dry quickly, and store away in paper-bags in a dry place.

PURSLANE.—*Portulacca oleracea* is the green purslane; *P. sativa* is the golden purslane. Sow in pans filled with sandy soil, in a warm greenhouse, or on a hot-bed in March, and plant out from those pans in May. Give scarcely any water at any time. Sow in the open ground during April, May, and June; if in quantity, the drills should be six inches apart, and the plants to be thinned to six inches. A dry, sandy bank is the proper place for them, and the hotter the better.

ROSEMARY (*Rosmarinus officinalis*).—There are varieties with golden-striped and silver-striped leaves. The soil cannot be too poor and dry for this useful shrub, which, when growing on a wall from self-sown seeds, is longer lived than when growing in a garden border. The hot sandy bank will, at all events, be a good place for

it. It may be propagated from seed sown in March, April, and May, or from cuttings in spring; or, better still, by taking off rooted pieces, and planting them and covering them with hand-lights for a week or two, to assist their establishment. The plant may also be layered in summer—a process which consists in bending down a branch to the earth, and fixing it with a peg or stone, and covering the part which touches the earth with a little fine soil. If the branch is slightly cut or snapped without breaking it through at the part where it is required to root, the process is hastened, but roots are sure to be formed if this preliminary is neglected. When planted in quantity, a distance of ten inches apart every way must be allowed. Most of the preparations for promoting the growth of the hair consist chiefly of infusions of rosemary.

RUE (*Ruta graveolens*).—The “Herb of Grace” thrives well on the top of a wall, or on a heap of brick rubbish, or on a bank of chalky or sandy soil. The best way to propagate it is by cuttings of young shoots in May or June, put under hand-lights, but firm hard shoots may be planted in October, and they will make good plants the next season. Seed is a tedious method, but it may be adopted, and the best time to sow it is April or May. When grown in quantity, plant a foot apart. The variegated-leaved rue is a beautiful shrub for a rockery or wall. The only uses I know for rue are as a stomachic and to provoke appetite, and also to destroy worms in the intestines. For both of these purposes it is steeped in gin, and the gin is taken as a medicine. It is certainly effectual.

SAGE (*Salvia officinalis*).—The roast goose of Old England is scarcely less important than the roast beef; and so sage is scarcely less to be desired than horseradish. This plant requires a good soil, and an open, sunny position; shelter is desirable, for in hard winters sage is, in exposed situations, very much cut up. Cuttings may be made, in the month of April, of the hard wood of last year's growth, and these should be planted in a shady place, and have water when the weather is dry. It is better, however, to wait till the early part of June, and then take cuttings of the new wood, selecting the strongest shoots on the outsides of the old plants. Remove the leaves from the shoots, except the last half dozen at the top, and insert the cuttings deep in newly-dug ground, in a shady place, six inches apart each way. Give them a sprinkle of water every morning, to keep the tops fresh and make the soil moderately moist. Of course, this need not be done during wet weather. Let them remain till the March following, and then transplant them to an open, sunny spot, one foot apart. Seed may be sown in April and May, in a bed of light soil, in drills six inches apart. As soon as large enough to draw, the rows may be continually thinned, and the thinnings may be planted out, in showery weather, six inches apart, to gain strength for planting out for use. It is a good plan to destroy plantations of sage after four or five years' use, and begin again with young plants, as they are apt to become stumpy, and many of them die in the centre. They may be made to last any length of time, however, if great care is taken to prune them carefully in the summer, and from the prunings to strip the leaves for drying, instead of hacking

the plants about in an indiscriminate manner. Another aid to their longevity is a dressing of the soil between them with a coat of rotten hot-bed manure in February or March. The flavour of sage is so agreeable to some persons, that they put a leaf in the tea-pot to flavour the tea, and "they say" that tea so flavoured is a fine refresher for a weak stomach.

THYME.—*Thymus vulgaris* is the common pot-herb thyme. It grows best in a sunny situation, on stony or sandy soil, but it may be grown in rich garden soil; in which case it is rather tender in winter. When growing amongst stones, or on walls, the severest frost does not harm it. Thyme may be raised from seeds sown in fine earth in April or May, and will require to be thinned as the plants spread. It is far better, however, to divide the plants into little pieces, each with a few roots, in March or April, or, indeed, any time through the summer, if shading and watering are resorted to, that the heat of the sun may not destroy them. It is an exhaustive plant; therefore, after having stood some years in one spot, a fresh plantation should be made, and the old ones should be destroyed, and the ground deeply dug and manured. Cut the tops for drying when the flowers begin to expand.

LEMON THYME is a lemon-scented variety of wild thyme (*Thymus serpyllum*). It does not come true from seeds, therefore must be increased by parting the roots or by slips. A sandy soil is required for this; it thrives well in peat, but not in chalk, and in ordinary garden soil grows luxuriantly, and is sometimes used in place of box for edgings, and is better than box for green embroidery. The common wild thyme (*T. serpyllum*) of the heaths is as good as any garden thyme for flavouring soups, forcemeat, etc., therefore those who live in places where it grows in plenty may replenish their kitchen stores from nature's great herb-garden. The following are worth a place on a bank or rockery amongst Alpine plants:—*T. corsicus*, a little green-leaved annual, which comes up every year from self-sown seeds; deliciously fragrant when in flower. *T. serpyllum lanuginosum*, a woolly-leaved variety of wild thyme, which makes a pretty patch on a ledge of rock, requiring scarcely any soil. *T. vulgaris variegatus*, with variegated leaves, makes a pretty tuft on a bank, and is almost good enough for an edging in the flower-garden. *T. azureus*, a delicate little rock plant, with minute purplish-blue flowers. Every known species and variety of *Thymus* is worth growing, and all are pleasantly fragrant except *T. azoricus*, which might be called a stinking thyme.

WORMWOOD (*Artemisia vulgaris*).—The common wormwood will grow anywhere, even in a shady border, where few other things will live, but, when required for a medicinal purpose, should be grown in the full sun. It is a hardy herbaceous perennial, of coarse, but not repulsive appearance. As it spreads fast, it is apt to become a troublesome weed, and it is therefore not advisable to plant it in any place where a neat appearance is a matter of importance. For medicinal purposes, it should be gathered in June, when in flower. It is a fine tonic bitter. Several very beautiful species of *Artemisia* are in cultivation in gardens. The variegated variety of *A. vulgaris*

is a charming plant in spring, but becomes coarse in summer. *A. argentea* forms an elegant silvery bush; it is not quite hardy. The southernwood is *A. abrotanum*, a plant which will grow almost anywhere, but is at home on a raised bank.

TARRAGON (*A. dracunculus*).—A favourite plant of the country garden, in some households prized for the preparation of tarragon vinegar, and it is much used, also, to flavour sauces. It gives an aromatic warmth to a salad. The soil for this plant should be poor and the position sunny. It is a hardy herbaceous plant, easily propagated by parting the roots. The tarragon plantation must be planted in the spring, the roots one foot apart; but where fresh leaves are required in winter and spring, plants that have not been cut from should be taken up in October and November, and be divided and planted in frames. In warm, sheltered gardens, a few plants on a dry border, facing south, may be pretty well depended on to supply fresh leaves all the winter. The flower-stems should be cut close over as they rise, unless seed be wanted. Those who like the flavour of tarragon should dry a little in summer for winter use, as the dried leaves have nearly as good a flavour as those freshly gathered. S. H.

PLANTING ROSES OUT OF POTS.

BY W. D. PRIOR, ESQ.



NO true enthusiast in floral enterprise is ever weary of discussing questions connected with the rose, particularly under the phase of new and untried varieties. There is always a hope of some closer approximation to ideal perfection than that already possessed, which leads us to anticipate, anxiously as well as curiously, the productions in store for us, through the skill of foreign and English raisers, year after year. We eagerly desire to put all such to the test of experiment at once; and the only way of doing so, as regards the novelties of the season, is by means of plants, turned out of pots into prepared situations as soon as the weather will permit. By the time this number is in the hands of the readers of the *FLORAL WORLD*, a suitable period will have arrived for the operation, and the first step towards its successful result will be a careful and well-considered preparation of the soil in such positions as the plants are destined to occupy. There is no better composition, where the soil is not exceptionally appropriate for the growth of roses, than the following admixture: of chopped sods from a clayey pasture, one part; of soft silky loam, another; of rich manure (preferably that of the domestic pig), another; of the scrapings of the fowl-house a third part; the like quantity of nodules of charcoal, about the size of a nut, and also of broken bones. Let this compost be filled into a hole about three feet in width, and in depth two feet. The plant is to

be placed in the centre of this artificial soil, *the roots immediately surrounded by fine pure loam*, and made firm in that position. As the roots become established in this, they will push forth vigorously in search of nourishment into the surrounding soil, and speedily send forth a development above satisfactory to the eyes of the gratified cultivator.

The first point to be recollected in transferring roses from the confinement of a pot to the more congenial expanse of the soil, is that the roots are young and tender, easily broken, and without the toughness necessary to render them able to encounter stiff soil; indeed, many cultivators grow their young roses only in peat, hence the necessity of great care in dealing with the younglings when planting them out, and also of adapting a portion of soft encouraging stuff about them wherever turned out, whether into special beds, or in separate situations in the mixed border. Once established in such soil, however, as is here recommended, and success is certain; a fair amount of bloom may be expected in August, perhaps even in July. The next point to be attended to is a liberal mulching of manure, and, if possible, a partial and temporary shading, when the plants are committed to the earth, with attention to frequent "douches," in the absence of genial rains. Roses are "thirsty souls," and must have frequent libations of something even stronger than water to develope to the uttermost their glowing charms. It will be noticed that pot roses on the manetti stock are never sunk in the pot so deeply as they ought to be. The "*work*," that is, the junction of rose and stock, is rarely covered, owing to want of sufficient space in the pot itself. This must be carefully rectified at the time of planting out, or ruin to the plant will follow. On the contrary, roses upon briars, or upon their own roots, ought never to be planted below the collar. In other words, they should not be put deeper in the soil than they are already in the pots.

Planting from pots is also the proper method of filling up blanks caused by the devastations of winter, now that full-grown roses are potted up in good sized pots in the autumn, sometimes for forcing purposes, sometimes for supplying gaps in the rosary or borders. Indeed, forced plants, after going out of bloom, may be used in this manner after having been cut back and hardened off out of doors for a short time. Plants so treated often produce a fine autumnal bloom. Of the novelties proper, which can only be obtained in the form of pot plants, the following appear to have been most generally selected by our English distributors as fertile in promise. I have added the pronunciation in equivalent English sounds, as nearly as possible corresponding to the French, as likely to be useful to a certain section of the gardening public:—

NAME.	PRONUNCIATION.	RAISER.
<i>Elie Morel</i>	A-lee Mor-rell	Liabaud.
<i>Baron Haussman</i>	Bar-rong House-man	Leveque.
<i>Duchesse d'Aoste</i>	Doo-chess dar Oste	Margottin.
<i>François Fontaine</i>	Frong-soaw Fon-tain	C. Fontaine.
<i>Madame Marie Cirodde</i>	Mad-dame Mar-ree Ser-rode	C. Verdier.
<i>Merveille d'Anjou</i>	Mare-vay-ye dong-jou	Touvais.

NAME.	PRONUNCIATION.	RAISER.
<i>Pitord</i>	Pee-tor	Lacharme.
<i>Prince Humbert</i> (query good ?) .	Prangse Hoom-bare	Margottin.
<i>Souvenir de François Ponsard</i> .	Soov-neer deh Frong-soaw Pong-sar	Touvais, or Liabaud.
<i>Vicomtesse de Vezins</i>	Vee-com-tesse deh Vay-zang	Gautreau.
<i>Jean Brosse</i>	Jang Bross	Ducher.
<i>Baronne de Rothschild</i>	Bar-ron deh Rot-scheeld	Pernet.

(This rose in full is Madame la Baronne Adolphe de Rothschild, or *Baroness*; the "Baron" was introduced a few years back. It is a pity our English growers do not unite to anglicise all French names, where possible, when they come into our lists.)

<i>Reine de Portugal</i>	Rain deh Port-oo-gale	Guillot fils.
<i>La France</i>	Lah Frongse	Guillot fils.
<i>Madame Rolland</i>	Mad-ame Rolland	Moreau.
<i>Alice Dureau</i>	Ah-les Doo-ro	Vigeneron.
<i>Charles Turner</i>	_____	} E. Verdier.
<i>Souvenir de Caillat</i>	Soov-neer deh Cay-yah	

The best of last year will be found among those here following:—*Adrien Marx*, *Alba Carne*, *Antoine Ducher*, *Annie Wood*, good. *Bertha Chenu*, *Charles Verdier*, *Comtesse de Jancourt*, good. *François Treyve*, good. *Jules Calot*, *Madame Bellenden Kerr*, *Madame Margottin*, *T. Madame Pulliat*, *Therese Levet*, *Monsieur Chair d'est Ange*, *Monsieur Noman*, good. *Paul Verdier*, good. *Souvenir de Monsieur Boll*, *Therin*.

The following will be found an excellent selection among older roses of fine strong growers, suitable for almost any locality, most of which are kept in pots at the leading nurseries:—

LIST OF HYBRID PERPETUALS OF OLDER DATE, ALL GOOD.—*Achille Gonod*, *Alpaide de Rotalier*, *Alphonse Damaizin*, *Beauty of Waltham*, *Caroline de Sansalles*, *Charles Lefebvre*, *Comte de Nanteuil*, *Comtesse de Chabriland*, *Duchesse de Morny*, *Docteur Andry*, *François Lacharme*, *General Jacqueminot*, *Jean Goujon*, *John Hopper*, *Jules Margottin*, *Le Rhone*, *Louise Darzins*, *Madame C. Crapelet*, *Madame C. Wood*, *Madame Domage*, *Madame Cambacères*, *Madame Knorr*, *Madame Vidot*, *Marguerite de St. Amand*, *Maurice Bernardin*, *Pavillon de Pregny*, *Prince C. de Rohan*, *Princess of Wales*, *Sophie Coquerelle*, *Ville de St. Denis*, *Victor Verdier*, *William Griffiths*.

TEAS.—*Gloire de Dijon*, *Devoniensis*, *Maréchal Niel* (really between a Tea and a Noisette), *Madame Falcot*.

BOURBONS.—*Souvenir de la Malmaison*, *Acidalie*.

FOR A BED OF TEAS, take *Alba Rosea*, *Devoniensis*, *Gloire de Dijon*, *Buret*, *Madame de Vatry*, *Triomphe de Guillot fils*, and the new NOISETTE, *Maréchal Niel*. For crimson colour, intersperse these with *Fabvier* or *Cramoisie Superieure*. If pegged down in free rich soil, several courses of bloom may be had from such a bed during the season, and the contrasts of colour will be delicate and charming.

A word to intending purchasers of the kind of plants treated of in this paper. It is quite time to select them, as well-developed samples go off very fast as soon as the season for planting out begins. Therefore, those who intend to plant pot roses now must lose no time.

To obtain plants on their own roots is no easy matter. It is not the rule to recommend dealers, but we are bound to say that own-root roses are now produced in plenty by Messrs. G. Paul and Son, Cheshunt; Messrs. Lane and Son, Berkhamstead; and Mr. Fraser, Lea Bridge Road.

THE CULTIVATION OF PALMS.

BY GEORGE GORDON.

IN TWO PARTS.

PART I.—GENERAL CULTURAL DIRECTIONS.



T must be a matter of much congratulation amongst all who love heartily that which is beautiful and good in the vegetable kingdom, that the idea is at last dispelled which prevailed for such a long time in connection with the whole race of these grand and majestic plants, that they required stove temperature and peculiar treatment to grow them properly. Nothing but the prevalence of this fallacious notion could have kept them from becoming as common in our gardens as—what shall I say?—not scarlet geraniums, for that would be (even for these) rather too plentiful, and I admit the possibility of having too much of a good thing; perhaps, for the sake of not going wrong, I had better say we should have been able to count the plants by dozens where there is at present not a single plant. It has not been their difficult culture that has kept them back, for they are all easy enough to grow. I have, in my time, handled a vast multitude of plants of different kinds, but I never found any to excel the palms in this respect, and I know of none which has so thoroughly rewarded me for my time and trouble spent over them. I am wrong in naming what has been to me a most delightful employment “trouble”—pleasure or enjoyment would be more correct, or, at all events, better represent my feelings upon the subject. A more charming occupation cannot be devised than in tending to their various wants and requirements, which are, by the way, but few and simple; and this remark is more especially applicable when the young plants are raised from seed, which is the system I should recommend amateurs to pursue, in certain instances where they can procure seed, and have patience to wait. All our readers must have observed that the interest engendered in the plant raised in this way is double that felt for such as come into one’s possession when they are portly or fully-grown specimens. In a certain sense I am wrong in recommending this plan, for it is better, where the convenience of a hotbed is not at hand for raising the seeds, to obtain small plants, and save a couple of years’ watching and waiting. I am unable to understand why our nurserymen in this country do not go into the palm business much more extensively than they do at present, for there can be no doubt but what they would have ready sale for them, if offered at reasonable prices, such, for instance, as that at which they are sold by the leading nurserymen on the Continent. Several of the kinds can be procured in France and Belgium for two or three francs each, which is no more than the sum paid for any common greenhouse plant; but, of course, like everything else, some sorts are more valuable than others. But I am wasting space with these desultory remarks. I had better commence with that part of the question which will make us independent of the nurserymen for young plants, namely—

RAISING PALMS FROM SEED.—By way of making a beginning, it will be best for me to say, that for the first year or so the whole of the palms ought to have the assistance of a stove temperature; but that can generally be afforded them, for there are but very few people who do not grow a few melons and cucumbers, and by a little contrivance sufficient space can be found in one corner for the seed-pots and the young plants after they are potted off. March is a good time for sowing the seed, but that time is past. There need be no fear of failure if the seeds are got in at once, for the plants will get stout and strong enough to stand the winter in the greenhouse, if they are placed in a snug corner, and are not injured through having too much water. This remark applies to the greenhouse kinds only, for where there is a stove, the seed can be sown at any time with reasonable hope of success, though the best time is the spring; and, in that case, I should advise the greenhouse kinds to be grown, for the first year, with those requiring stove heat. The pots should be prepared by putting a couple of inches of drainage in the bottom, and then filled up to within half an inch of the rim with a compost consisting of peat, loam, and leaf-mould, in equal quantities. The seed should be sown upon the surface of this, and covered with half an inch of chopped moss or leaf-mould. It is of no consequence which is employed; and then, after the pots have had a moderate watering, they should be plunged in a hotbed of about 75°; or the pots can be placed upon the pipes or flues of a vinery until they germinate; or, in fact, anywhere else, if sufficiently warm and moist. After the young plants begin to grow, the pots must be removed, for fear of the soil getting too dry and hot for the young and tender roots. The soil must be kept just moist, and not saturated, or you will lose three parts of the seed. When the plants are large enough, pot off into small pots, using the same soil as advised for sowing the seed, with the addition of a liberal proportion of silver sand; make the soil the same temperature as the bottom-heat previous to using it. The young plants ought to be potted in the house in which they are growing, for it gives them a check from which they are a long time recovering, when taken out of a high temperature to the cold potting-shed. This operation must be performed with care, so as not to break the roots about. It is also advisable to return the plants to the bottom-heat, if it can be managed without interfering with other things of more importance. In raising plants of the cocoa-nut palm (*Cocos nucifera*), the nuts should be sown singly, and just covered with the same kind of material as the others; and then, when they vegetate and fill the pots with roots, they can be potted on without disturbing the roots. This brings us to the

MANAGEMENT OF YOUNG PALMS.—This can be summed up in a few words, as the palms are, as I have already observed, very easy to manage, for they require no special treatment. Those kinds which are sufficiently hardy to grow and do well in a cool temperature, should be grown on in a warm house until they get a good size—for warmth will not hurt them—and then they can be hardened off to bear the conservatory temperature. This is supposing

that large plants are wanted quickly ; otherwise they can be brought into the greenhouse as soon as they are established in the pots in which they were put when removed from the seed-bed. The pots in which the plants are grown should be quite clean and well drained. The preparation consists in placing one large piece of crock over the hole in the bottom, then a layer of rather large broken crocks, and over that a few smaller ones, and finally some pieces of rough fibry stuff, to prevent the fine portion of the soil from running down amongst the drainage, and choking it up, thereby preventing it properly carrying off the water. This question of drainage is not considered of such importance as it really is ; and I consider that fifty per cent. of the failures in plant-growing could be traced to the want of effective means for carrying away quickly the superfluous moisture applied to the roots. No plants require a more strict observance of this rule than the palms, if fine, healthy specimens are desired, although they might not be killed so soon as some of the New Holland plants. The soil should consist of good fibry loam, used lumpy ; close, compact soil is of no use whatever, and plenty of sand must be added. When the plants are growing, it will be found to be advantageous to use a little lumpy peat, to keep the mass more open, and enable the young roots to run more readily in quest of nourishment. The soil should be pressed firm with the potting-stick, and the plants should have a liberal shift at each potting, to render frequent shifting unnecessary ; for these plants do best when disturbed at the roots as little as possible. The balls of soil must not be broken about, or the plants disrooted ; but it will be necessary to disentangle a few of the roots round the outside with a small blunt stick, to enable them to strike readily into the fresh soil. It is advisable to give the plants an increase of a few degrees of warmth after they are potted, and also water must be applied cautiously, until the roots begin to feel the sides of their pots. Early in the spring is the best time for performing this operation, just before they commence the season's growth, and then there is no farther check to their progress. These cultural directions will apply to both classes. Those that require a stove for their successful cultivation, and those that grow in a temperate house, require the same kind of treatment ; but, of course, the remarks respecting the increase of temperature when fresh potted, and the keeping young plants in heat, naturally enough apply to the "cool" kinds only ; the stove kinds require more heat in all their stages and conditions.

TEMPERATURE.—To settle this point off hand, I should say the heat of an ordinary stove will suit one class or division, and that of an ordinary greenhouse will answer for the other. But then that would be speaking too wide, for one scarcely knows at what temperature the one ends and the other begins ; for some people grow what are known as cool stove plants, whilst others have those termed warm greenhouse plants, which merges the two, as it were, into one. Therefore, to make everything as clear as possible, and to prevent any doubt arising, I will say that the stove species should have from 70° to 80° of heat from the commencement of the new growth until it is completed, or say from March until September ; and from that

time up to the following March from 50° to 65°. This appears to be allowing a wide latitude for the range of the temperature, but it is not so great as the first glance would lead one to suppose. At or about 50° of Fahrenheit is the height at which the glass should stand in midwinter and particularly sharp weather, and 65° is the temperature for the commencement and termination of that season. It must not for a moment be supposed that I advise the heat to fluctuate to such an extent in one day, or that it can be allowed to do so without resulting in a certain amount of injury to the plants. For the cool palms the thermometer should stand at about 45° through the winter; a few degrees either way is of no importance. To allow as wide a range as I can, I will say keep it between 40° and 50°, then there will be no fear of anything going wrong. It is next to impossible to fix any specific degree at which the temperature ought to be maintained through the summer. Besides, it would be of no practical service were I to do so, for the heat of our summers will be quite sufficient for them. It will be of very great advantage to them if they receive a little encouragement in the way of artificial heat for a month or six weeks in the spring, to assist the development of the new growth; it will enable them to complete it early in the summer, and get thoroughly matured before the winter sets in. I hope this last observation will not deter any one from entering upon their culture that have no heat, for they will do very well without such assistance, and I should never trouble about it unless I had plenty of room.

WATERING.—The amount of water which each plant will require depends upon whether the plant is in good health, and the pot full of roots; for a plant that has outgrown its pot, and exhausted the soil in which it is grown, will require double the quantity one would that has not filled the pot with roots. But speaking generally (and that is all I can do), the whole of the plants will require plenty of moisture at the roots when making new growth, and to be sparingly watered through the winter, when they are at rest. The stove kinds should have a moderate amount of atmospheric moisture through the summer, and be syringed overhead in the same way as the other plants. The cool kinds will not require the same amount of syringing as the others, but a thorough washing overhead occasionally will be beneficial in keeping the foliage free from dust, etc.

As a rule, we have nothing to do in respect of seeds beyond advising readers what sorts to buy. But when we talk of sowing seeds of palms it is almost a mockery, unless we add a word about obtaining them; for not one seedsman in a thousand in all England ever sold, or even saw, a palm-seed. Therefore on this occasion I feel it my duty to recommend that, unless the reader intending to raise palms from seed knows how to obtain the seeds without my help, he would do well to apply to Messrs. James Carter and Co., of High Holborn, or Messrs. Hooper and Co., Central Avenue, Covent Garden; both these firms occasionally import palm-seeds. The only species advertised by these firms in the form of seeds are *Chamærops humilis*, and *Acanthophanix crinita*, two of the finest palms in cultivation.

ROUGH AND READY GARDENING.—NO. IV.

HARDY PLANTS FOR MASSES.



CORRESPONDENT asks for a list of hardy plants suitable for the bedding system, which may be planted, and left for several years to take care of themselves. The subject is well adapted for this series; indeed, it is the principal object of these papers to assist in the full development of the highest possibilities of decorative gardening, with the least possible expenditure of labour and money. It is not by any means an easy matter to plant a set of beds with hardy plants alone in such a way that, in the height of summer, their appearance will be rich according to prevailing ideas of richness in garden colouring. We can imagine some of our readers making the attempt, and at last pulling all their work to pieces, and beginning again with geraniums and verbenas. However, we shall deal with the subject honestly and decisively; giving to none of the plants we select a character on the *couleur de rose* principle, and as far as we can foresee difficulties, pointing them out. It occurs to us to make two practical remarks. In the first place, a group of beds, or an entire garden, embellished with hardy plants throughout may be rendered abundantly beautiful and interesting if a sufficiency of noble forms are introduced. For example, the little *Campanula carpatica*, with its myriads of pure white or light blue flowers, will be found one of the best plants for this kind of planting; but if subjects like it in habit are alone selected, the effect must be tame, though to certain tastes it might be pleasing. Therefore we turn to quite another class, and we find in such a noble subject as the New Zealand flax (*Phormium tenax*), or the Recurved-leaved Adam's Needle (*Yucca recurva*), bold decisive outlines which add to the dignity and richness of the garden, and remove from it entirely the tameness that might result from a profusion of hardy herbaceous plants, and the complete absence of the ordinary highly-coloured bedders. The second general remark is, that however carefully hardy herbaceous plants are treated in the first instance, they must not be expected to keep themselves in a trim orderly condition; and therefore by "rough and ready gardening" must not be understood leaving the garden to go wild, the weeds to get the upper hand, the best plants to grow into jungle-like masses, or die out and leave bare places, as is the custom of some of the very best of them. Some amount of cultivation must be attempted, some amount of care must be bestowed, some amount of taste displayed. Yet one more remark. The sort of gardening we are treating of now is not well adapted for gardens strictly geometric in design, and the plants we shall now recommend are not the best possible for a summer display in the formal parterre. In designs prepared expressly for geraniums and other greenhouse bedding plants, hardy plants, however judiciously disposed, will have a somewhat cold appearance; but the best parterre in the grandest garden in the world may be made the richer and the more pleasing by the introduction of hardy plants. Many

of these are, indeed, well adapted to increase the effect of the more highly coloured masses. Undoubtedly the most effectual way to render a garden agreeable by the use of hardy plants alone would be to detach the beds more or less, substituting groups of two or three, or single beds, in the place of geometric designs; thus spreading over a considerable space a variety of objects, and avoiding the attempt to imitate by such unsuitable materials the effects commonly sought to be produced by means of the fashionable bedders.

I shall first call attention to plants that are adapted to give dignity to the garden, and which are adapted for the embellishment of the lawn, the vases, for centres of beds, for centres and divisions of groups of beds, or such as are sometimes called "key positions."

YUCCAS.—The finest of this fine family for general purposes is *Y. recurva*. It is true it does not frequently flower, which is an advantage, but in its tone of green, and its superb outlines, it surpasses every other hardy species. Plant on a well-drained position, in soil consisting of equal parts good loam, sharp sand, and broken bricks.

ARUNDINARIA FALCATA is an elegant bamboo of most fresh and graceful appearance; fine for a centre-piece, quite hardy, and will grow well in any good soil.

ARUNDO CONSPICUA is a handsome grass like the pampas, but less in size, and flowering freely all the summer, whereas the pampas does not flower freely till autumn. This is used on raised banks at Battersea Park with singularly beautiful effect. It comes true from the seed commonly offered, but it requires three years' growth to make flowering plants. A large bed of this, with cannas intermixed, would have a fine appearance.

ACER NEGUNDO VARIEGATA.—This is the whitest leaved tree in cultivation, and at present rather expensive. Nevertheless it is cheap for the rough and ready gardener, for, at from three to five shillings each, a few pounds might be judiciously invested, to produce a large group of a sensational kind. In fact, a group of dwarf trees of this *Acer* would present a remarkable appearance in an English garden. Those who do not know the tree are advised to ask after it at a nursery, and having seen it they may consider whether to take it in hand next autumn. If planted to form a group, trees grafted near the root should be chosen, and when planted they should be three feet apart. Regular pruning would keep them to any height required.

EUONYMUS LATIFOLIA AUREA would make a fine ribbon line or bed of golden leaves, if planted in a poor soil. Rather dear at the first start, but, being hardy, the first cost is an investment rather than an expenditure. It is the most brilliantly golden-hued shrub in cultivation.

EUONYMUS RADICANS VARIEGATA is a splendid edging plant, equal to the best of the variegated geraniums, and quite hardy. A good companion this to the variegated-leaved geraniums that have been frequently recommended in these pages.

VIRGINIA CREEPER.—Queer proposal, perhaps; but, really, if a great bed was covered with Virginian creepers, and stocks or asters

were planted all over it, the appearance would be very pretty, and in autumn, when the flowers were gone, the creeper would blaze away like a bed on fire. Not to be despised, I think, that suggestion.

Let us now consider what can be found in the way of rich colouring among plants strictly hardy.

HYBRID CLEMATIS.—The new race, of which *Clematis Jackmannii* may be considered the type, are amongst the finest bedding plants in the world. To display their beauties effectually, they should be planted on raised beds, consisting of light rich soil—just such a soil, in fact, as all bedding plants require. Planted two feet apart all over a large bed, and trained out to cover it, any of the new series of clematis would have a grand effect. And here, indeed, we find a contradiction to the remark made above, that it is not an easy matter to colour a large group of beds with hardy plants alone, for a set of a dozen beds, if needful, could be coloured distinctly and richly with these plants. We give the names of six, which we consider the best of the race for bedding. If expense is an object, they may be planted a yard apart, and the bed can be filled in with something else the first year:—*Prince of Wales*, deep purple, with red bars. *Jackmannii*, rich cobalt blue shading to violet. *Lanuginosa pallida*, lilac, with reddish bars. *Rubro-violacea*, maroon shaded reddish violet. *Viticella Mooreana*, deep violet. *Azurea grandiflora*, light blue. The last is an old variety, but the other five are Jackman's. They may be obtained from Messrs. Jackman and Son, Woking.

ALPHABETICAL LIST OF HARDY HERBACEOUS PERENNIALS ADAPTED FOR MASSING.

Achillea millefolia rosea.—The foliage of this common hardy yarrow is elegant and cheerful, and the flowers are of a pleasing tint of pinkish rose, not by any means telling when seen at a distance, but exquisite when closely inspected. It spreads fast, and yet is neat and easily managed, and any soil will suit it. Plant, in the first instance, a foot or eighteen inches apart, and at the end of three or four years the bed will require thinning.

Achillea Ptarmica flore pleno.—A lovely plant, which all the winter is as elegant as a fern, and the greater part of the summer is covered with flowers that may be likened to white lace. Others of the yarrow tribe are suitable, but these two are the best.

Alyssum saxatile is well known for its golden flowers in April and May. If employed as an edging, or for small beds in the intersections of a design, it may be allowed to remain all the year for the sake of its neat glaucous leafage. On dry, sandy, or chalky soils this plant is long lasting, but on damp loam or clay it needs renewing every few years from seeds or cuttings. The *variegated-leaved variety* makes a charming edging on a dry sandy soil, but is scarcely hardy where the soil is heavy or damp.

Calystegia pubescens makes a quiet, pleasing bed, if treated the same as advised for the clematis. The flowers are like small crumpled blush roses, and are produced in great plenty.

Campanula carpatica is a lovely bedding plant; there is nothing of its kind to surpass it, whether treated as an annual or a perennial. There are two varieties, the *blue* and the *white*; and if planted separately, they make charming beds. Many other campanulas are suitable for massing.

Delphinium formosum gives a glorious display of blue in May and June, but never lasts the season through. Why not plant it with something that will succeed it—for example, the *variegated-leaved Epilobium hirsutum*.

Euphorbia cyparissius is a fast-spreading dwarf-habited plant of a peculiar bluish green colour, suitable for a small bed or an edging, or as a groundwork amongst plants of tall stature. It may be multiplied by cuttings in the open border or by division, and thrives on any tolerably dry soil.

Festuca ovina tenuifolia and *glauca* are two fine-leaved tufted grasses, the first a rich deep green, the second blue. They are excellent for edgings in rustic planting, but not well adapted for richly-dressed grounds.

Iberis corifolia differs from the perennial candytufts commonly in cultivation, in its large glossy deep green leaves, and its large white flowers, which are produced throughout the summer. It is scarcely a plant for a bed, yet, if established in an elevated position, it might prove one of the best bedding plants in the garden. The neat *Iberis saxatile* makes a charming green bed all winter, and a white bed from mid-April until June, after which it ceases to flower freely.

Lathyrus latifolius albus, the white everlasting pea, makes a sumptuous bed if planted a yard apart on a raised surface. Perhaps the other varieties of everlasting pea are equally good, but this is the only one we have tried for massing.

Lotus corniculatus flore pleno, the double-flowering bird's-foot trefoil, will make as pretty a bed of yellow flowers as any plant known. A moist rich soil will suit it, but it scarcely matters whether moist or dry, rich or poor. Put in little pieces a foot apart, and leave it to thicken until it appears to be wearing out, which will be the case in four or five years; then destroy it, dig and manure the ground, and plant the bed with something else.

Pyrethrums and *Phloxes*.—Here are fine subjects for the hardy garden, and well adapted for mixing together, the phloxes to succeed the pyrethrums. See former notes on these plants; the subject is too large for detail now.

Pyrethrum Golden Feather makes a pretty sulphur-coloured mass, and is well adapted for an edging. It is quite hardy, and may be taken up and divided in spring, either to regulate the growth or to increase the quantity.

Nepeta violacea is a very neat glaucous-leaved plant, which produces abundance of lavender blue coloured flowers all the summer. It will be found a good companion plant to the rosy yarrow.

Saxifraga cordifolia is well adapted to form a mass, though its flowers last but a short time in spring. Its leafage is noble, and we know not why, in such a mass, we might not have summer flowers

by planting something suitable in the midst of it. *Saxifraga oppositifolia* and *S. hypnoides* are fine plants for massing, but they will not be cared for by those who are geranium mad.

Sedum acre aureum is a variety of the common stonecrop. In the month of February it begins to grow, and the tips of the shoots become golden. This increases till towards April, when after a brilliant display of its golden colour, it slowly changes to a whitish colour, after which it becomes green like the common stonecrop. In June it flowers freely, and is then golden again; thus it affords two displays of gold, and all the rest of the year is as green as grass: such a plant is invaluable to the rough and ready gardener, especially for an edging. But where is he found? Ah! "there's the rub." We have seen it at the Hale Farm Nursery, Tottenham, near London, and we know that Mr. Dean, of Shipley Nursery, Yorkshire, has it, but strange to say, it is extremely scarce and but little known, though a handful to begin with might be made enough of to plant miles of it in a few years.

Sedum spectabile, otherwise known as *S. fabarium*, is a good bedder for rosy flowers in September, but scarcely gay enough in summer to suit the prevailing taste. Several other sedums claim consideration in this connection.

Sempervivum californicum is the best of this series for our purpose. It makes a distinct, bold, handsome edging.

Silene alpestris is exquisitely beautiful on a dry, sandy, or peaty soil, but will scarcely live on a cold loam or clay.

Spiræa filipendula plena might be useful for a mass in an isolated position, but could scarcely be associated in a group with plants of neat habit.

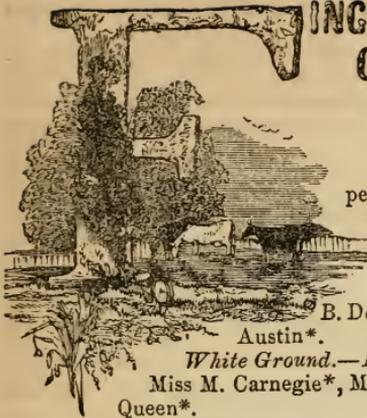
Spiræa Japonica, or *Hotiea Japonica*, is a lovely plant, but not a showy one. If tried as a bedder, it would charm by its fern-like leafage and its elegant spikes of white flowers in May and June; but it might disappoint through lack of gaiety.

Symphitum kermesinum or *S. coccineum* might make a rich bed of summer flowers, but the plants are rough-looking, and should not be tried until some acquaintance has been made with them.

Tritoma uvaria is one of the grandest of all known plants for masses, and it is perfectly hardy. Plant in deep soil that has been well dug and abundantly manured, and leave them alone several years. A large bed of this, with *Arundo conspicua* planted with it, for a groundwork, would have a grand appearance.

Reference to former papers of this series will assist the reader in selecting hardy plants for edgings, in addition to such as have been noticed above. Those who are interested in the cultivation of hardy plants adapted for massing would do well to lay out an experimental border, in which to plant various subjects on trial before employing them in the formation of masses. It is necessary to be quite accustomed to the successive seasonal appearances and the habits and requirements of plants ere venturing far in the planting of them in formal compositions.

S. H.



IRON-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF SHOW PANSIES.

Best for small collections marked thus *.

Sels.—Alexander Tait, Cherub*, Eclat, Imperial Prince*, Miss Ramsay, Mr. J. Graham, Miss Muir*, Queen of Whites*, Golden Prince*, Ladyborn Beauty, Emblem, Arab.

Yellow Ground.—Adela*, Comus*, Alex. Whamond, Francis Low*, George Wilson, J.

B. Downie*, John Downie*, Thomas Martin, William Austin*.

White Ground.—Attraction*, Countess of Rosslyn*, Jessie Laird*, Miss M. Carnegie*, Miss Williamson, Mrs. Laird*, Princess of Wales, Queen*.

Twenty-four Fancy Pansies.—Amy, Countess Munster, Hugh W. Adair, Medora, Miss J. Kay, Miss Melville, Ninian Niven*, Orange Boven, Sunrise, Sweet Lucy, Black Prince*, Distinction, Earl of Rosslyn*, John McNab*, Lady Montgomery, Magnificent, Michael Ange*, Mrs. R. Dean, Mrs. H. Northcote*, Maccomari, Noemi, Demay, Punch, Princess Alice, Striped Queen.

Bedding Pansies.—Maccaroni, bluish purple; Imperial Blue, rich blue, the best bedding pansy ever raised; Cliveden White, Cliveden Yellow, Magpie. These five would form a fine group; three shades of blue, and one each of white and yellow.

A SELECTION OF PELARGONIUMS.

Twelve Large-flowering Exhibition Varieties.—Lord Clyde, Mary Hoyle, John Hoyle, Amy, Fair Rosamond, Favourite, Inez, Purity, Osiris, Sanspareil, Roseum, Rose Celestial.

Twelve Large-flowering Fancy Varieties.—Helen Beck, Lady Craven, Arabella Goddard, Sarah Turner, Delicatum, Anne Page, Silver Mantle, Miss Dorling, Lucy, Cloth-of-Silver, Godfrey Turner, Miss Ford.

Thirty Zonals with Large Flowers.—Leonidas*, Dr. Lindley†, James Crute, Richard Headly, Mrs. Menzies†, Andrew Marvel*, Warrior, Hector (G. S.), Sir Fitzroy Kelly†, Miss Martin†, Magna Charta†, White Perfection†, Beauty o. Suresne*, Tintoret†, Titian†, Herald of Spring*, Prime Minister, Emile Licaut†, Forester, Eugénie Mezard†, Shirley Hibberd, Amelia Grisau, Comtesse de Cambourn, Bride*, Madame Werlet†, Madame Vaucher, Queen of Beauties, Perfection (F. A. S.), Cynosure* (F. A. S.), Mr. Bowley.

Twenty-four Nosegay-flowering Zonals.—Christine Nosegay†, Stella†, Pink Stella†, Crimson Nosegay, Rose Rendatler†, Duchess of Sutherland†, Lady Constance Grosvenor*†, International, Duchess*, Glowworm, Indian Yellow*, Lady Cullum, Lord Palmerston, Miss Farfitt, Orange Nosegay†, Rival Stella†, Amy Hogg†, Abd-el-Kader, Empereur des Nosegays†, Le Grand*, Boule des Asperides*, Merrimact, Waltham Seedling, Crimson Mantle†.

Twelve Scarlet Bedders.—Attraction* (same as Scarlet Perfection), Crystal Palace Scarlet* (same as Trentham Scarlet), Lady Constance Grosvenor*, Kate Anderson, Cybister*, Multiflora Nosegay* (very dwarf), Comte Zamoycki, Eleanor (robust and bold), Langiewiez, Tom Thumb, Waltham Seedling*, Brilliantissima (surpasses Brilliant).

Six Crimson Bedders.—Stella*, Black Dwarf*, Crimson Nosegay, International, Baron Ricasoli*, Imperial Crimson.

Six Rose and Purple Bedders.—Lord Palmerston*, Purple Nosegay, Countess of Sefton, Duchess of Sutherland*, Lady Cullum, Amy Hogg*.

Six Pink Bedders.—Christine*, Magenta Christine*, Queen of Denmark*, Pink Beauty, Wiltshire Lass, Minnie.

Six Orange Bedders.—Indian Yellow*, Orange Nosegay, Harkaway*, Harry Hieover, Hibberd's Pet*, Donald Beaton.

Six White Bedders.—Madame Vaucher, White Tom Thumb*, White-flowered Ivy-leaf, Madame Barillet, Floribunda alba nana* (Groom), Virgo Marie*.

Six Salmon Bedders.—H. W. Longfellow*, St. Fiacre, Bel Demonio, Salmon Nosegay*, Excellent*, Jean Valjean.

Six Sweet-scented.—Lady Scarborough*, Lady Plymouth*, Little Gem, Pheasant's Foot, Prince of Orange*, Quercifolium, Fair Emily.

For selections of cheap variegated-leaved pelargoniums, see "Finger Post" of September, 1867, and for the character of the new varieties, see "Garden Oracle" of 1868.

COLOURED ILLUSTRATIONS TO THE FLORAL WORLD.

WE are preparing a series of Coloured Illustrations for future issues of the FLORAL WORLD. In the June Number the first of them, consisting of figures of variegated leaved pelargoniums, will appear. In the July Number will be given a portrait of auricula Sir John Moore. For the present the price of the FLORAL WORLD will continue to be 6d., as at present, and should the circulation increase to an extent sufficient to cover the extra expense, we propose to render the coloured print a permanent feature without any increase of price. At all events, during the remaining months of 1868, the price will not be altered. Probably amongst our readers there may be many who will gladly recommend the work amongst their friends, and, by extending the sale, enable us to continually improve the work both in appearance and usefulness.

PROGNOSTICS OF THE WEATHER.—Old experience lays down sundry wise saws. When the stars look larger than ordinary, it is a sign of change of weather. Very bright or double rainbows indicate long-continued rain; the same when the rain smokes as it falls on the ground. Lightning in winter is a sign of coming snow, wind, or tempest. Bats flying about in unusual numbers announce that the next day will be warm and fine. Flies bite sharper and tease you more before a tempest. When the gnats dance in the setting sunshine, some hold it a sign of fine weather to-morrow, while sceptics declare it is only a sign of fine weather to-day. If it rains on the 3rd of May, there will be no walnuts; if on the 15th of June, no grapes. Plenty of snow precedes an abundant year; plenty of rain, the contrary. A rainy autumn spoils the wine of that year, and threatens a poor crop of wheat next year. A fine autumn is mostly followed by a windy winter; a wet spring and summer by a fine autumn. On the other hand, when the autumn is fine, the following spring is apt to be rainy.—*London Society.*

TO CORRESPONDENTS.

ERYTHRINA LAURIFOLIA.—*W. H. G.*—I have a plant that has been kept in a cold greenhouse during the winter; the crowns and roots are quite sound, but it does not yet show any signs of breaking. What treatment shall I give it?—[Take it out of the pot, remove part of the old ball, and repot in a soil consisting of good maiden loam, rotten dung, and plenty of sand, and a few small crocks mixed with it. Thoroughly drain the pot to carry away the water quickly, place the plant where it will have the advantage of a temperature of 70°, and unless something has destroyed the eyes it will push immediately. Trim away the weakly shoots and have a few good ones. As soon as the plant is fairly started, remove to a cooler house where it can have plenty of light and air, to prevent it drawing up weakly. Give it plenty of water, and syringe frequently to keep down red-spider.]

RAISING SEEDLING FERNS.—*A. M.*—I am desirous of raising a few seedling ferns. Some of the plants that I wish to increase are growing in my own fernery, and I am promised some seed of other kinds by a friend. How shall I proceed?

and what shall I do with the young plants that form on the fronds to grow them into nice specimens? I am particularly fond of these elegant-growing plants, but I have not much practical knowledge of growing them.—[Propagating ferns by spores is a very simple affair, if a moderate amount of watchfulness and patience is exercised. Take some pans and fill them about half-full of rough pieces of crock, and then take some fibry peat and break it up roughly, and thoroughly incorporate it with an equal proportion of sphagnum moss; it is not imperatively necessary to use sphagnum, for the peat alone will suffice, but it is decidedly advisable to use it, and we presume you wish to be informed of the best way. After the peat and moss are properly prepared, fill the pans about two inches above the level of the rim and make it firm, but leave a rough surface, and then, after the soil is properly moistened, take the fronds of the kinds you wish to propagate and shake them over the pans, and gently draw your hand up the underneath side of the fronds to dislodge the spores. After this is done, cover with bell-glasses, and stand the pans in water in a shady part of the stove. The spores are so small that watering overhead washes them out of their places. More especially is this injurious to them after they begin to vegetate. You should bring home whole fronds from your friend's carefully wrapped in paper. It is much better, whenever practicable, to sow the spores direct from the fronds than to make an attempt at cleaning them, like you would the seeds of ordinary flowering plants. As soon as you can see the young plants, give a little air, by tilting the glasses, to prevent their damping off. When the young plants are large enough to handle, prick them off either singly into small pots or several in large ones, where they can remain to strengthen and then be potted singly. Use peat and plenty of sand whilst the plants are young, and afterwards use a proportion of loam according to the kinds. As regards the young plants, take them off with a small piece of the frond adhering, and treat as advised for the seedlings. Secure them in their places by laying a piece of crock on the portion of frond, and keep them close until they are rooted into the soil.]

PHLOXES.—R. H.—We quite agree with you in respect to the value of these plants, for they are not excelled by any other genus of herbaceous plants; their culture is exceedingly simple. Pot a few plants only in the spring in some good rich soil, place them in a frame, and as soon as the young shoots are long enough, take them off, and insert in sandy soil, and place the pots in a gentle bottom-heat in the propagating pit. As soon as rooted pot off, and gradually harden them to bear the exposure to the open air, and plant out early in May. The following selection will suit you:—Admiration, large well-shaped flowers, bright red, with crimson centre; Baron d'Avesne, dark rosy purple; Clio, white, with pink eye and large spike; Comus, deep rosy purple; Duchess of Sutherland, pure white flowers of fine form and fragrant; Gem, blush, dark eye; Madame Kumph, bright red, shaded with violet, scarlet centre; Princess of Wales, pure white flowers, large, good form, and fragrant; Professor Kock, salmon shaded with violet; Soulouque, purple with crimson centre; Victor Hugo, carmine shaded with rose, bright crimson centre; William Elder, deep purple, suffused with rose, large and of splendid form.

VIRGINIAN STOCK AS A SURFACING FOR HYACINTHS.—P. W.—We are at a loss to understand the cause of your non-success with this plant. There can be no doubt about its being best to be sown where it is to flower, but as that is impracticable in your case, sow the seed *thinly* on a bed out of doors about the beginning of August, and as soon as the plants are large enough to handle, prick them off into larger beds in rows a foot apart, and three or four inches from plant to plant in the rows, choosing a dull day for the operation. Give these plants a good soaking to settle the soil, and if the weather is dry and bright, shade until they get established. When the summer plants come off in October, plant your Hyacinths in the flower-beds, and then take up Virginian Stocks, with a nice little ball of soil adhering to the roots, and plant between the Hyacinths. This operation must be carefully performed, so as not to break the roots about. Try this, and communicate the result.

CUCUMBERS IN PITS.—T. J. H.—Your pit is not large enough to grow both Cucumbers and Melons at the same time; therefore we shall advise you to commence with the first-named. You will be able to get plenty of heat by taking out the soil as you propose, but in doing so you must be careful not to go below the foundation of the walls and loosen them. As you get your plants out the first week

in May, you must soon begin to prepare the materials for the bottom-heat. Shake out the long litter from the stables, and if it is dry give it a liberal supply of water, and turn it over several times at intervals of four days, watering it each time if necessary to prevent its heating dry and mouldy; at the same time it must not be made too wet. The object of frequent turnings is to dissipate the noxious gases, and bring the manure into a steady heat. When you empty your pit, the hot dung should be brought in, and be carefully shaken out as the pit is filled with it; and it will need pressing pretty firm; and then in a day or two the soil can be brought in, just sufficient to form a ridge up the centre of the pit, and should consist of loam, leaf-mould, and rotten dung, in the proportion of two barrow-loads of the first to one each of the two latter. But if it should happen that you are deficient of leaf-mould, use a barrowful of the dung in its place; and let the materials be well incorporated together, and use the mixture in a moderately rough state. As soon as the soil is warmed through the plants can be turned out, one under the centre of each light. Plant them rather deep, and they will root up the stem and soon get established. Directly the planting is completed, give the bed a good watering with tepid water, to settle the soil. Keep the frame close for a few days until the plants get established, giving just sufficient air to allow the steam from the heating materials to escape, and shade from the sun. Directly the roots begin to take hold of the soil, more air must be admitted, and less shading will be necessary; but it will be as well to shade slightly through the hottest part of the day, after the plants get thoroughly established. When the roots begin to show through the soil, the remaining part of the compost ought to be brought in, and the bed filled up to its proper level. As the plants progress in growth, stop and train out the vines as may be necessary, for nothing will be gained by over-crowding. In the first instance, pinch out the points of the shoots above the second or third rough leaf, and the two branches which will emanate from the axils of these leaves must be again pinched as soon as they reach the sides of the pit, when they will emit fruit-bearing side-shoots; and these must be stopped a leaf above the fruit, to throw the whole vigour of the shoot into it. The shoots with no fruit on ought to be pinched one leaf from the main stem. Give the plants plenty of water (but do not overdo it) at the roots; for the unfruitfulness of cucumbers can often be traced to being too dry. Sprinkle overhead once or twice a day, and shut the pit up early. The syringing ought to be done early enough in the morning for the moisture to dry up before the sun acts powerfully upon the plants, or it will burn them. All water used should have the chill taken off by being stood in the sun, or by having the addition of a little warm water. We should advise you to procure some young plants ready to plant, if you have no means to raise them, before you get the heat in the pit, otherwise you will lose a month's valuable time. *Carter's Champion, Improved Sion House, and Telegraph* are free-bearing kinds suitable for frame culture.

SPECIMEN CONVULVULUS.—*Lady Gardener* is desirous of knowing what flowering plants would grow sufficiently quick to make nice large specimens to stand about on her lawn this season. This correspondent has not given us much time, for it is desired to place them quickly in their positions. We have no difficulty in the matter, for the annual *Ipomeas* make grand plants for the purpose, if treated liberally throughout the season. To make sure of your succeeding, we will detail at full the way of managing them. You must take some large pots—No. 4's are the most suitable—but they should not be smaller than 6's, for the smaller pots are not large enough to hold sufficient soil to carry them through the summer. The pots must be thoroughly clean; make a good drainage by putting a few large pieces of broken pots or pieces of brick in the bottom, and a layer of pieces of turf, or other rough stuff over, to keep the soil from getting down amongst them. When this is finished, fill in firmly with good fibry loam two parts; rotten manure, one part; and leaf-mould, one part. The soil must not be made too fine, but used rough and lumpy. Though the *Ipomeas* will grow luxuriantly in any ordinary soil when planted out in the borders, they require slightly different treatment, and a little better soil, when the roots are cramped in pots. Directly the pots are filled with soil, the seed should be planted regularly over the surface, and buried half an inch deep. From eight to twelve plants will be quite sufficient for one pot, but it will be as well to plant a few more to allow for casualties; and when the plants come up they can be easily drawn out; there will be no advantage in having the plants too much crowded. There is not a moment to be lost, and the pots should be placed in a little

warmth if available ; but failing that, a warm corner of the greenhouse will do. It is only a question of getting the seed to vegetate a few days sooner, for the pots would have to be brought out of the heat into the greenhouse directly they are up, and formed the rough leaf, and placed where they will be fully exposed to the light and air, that is, after they have been in the greenhouse a few days, and had the advantage of a snug corner. To bring the young plants out of a close, moist heat, and place them in an airy position in the greenhouse, without undergoing a slight hardening process, would do them irreparable injury. The next question is that of training, which can be done without employing expensive wire trellis. We like trellises well enough for indoor work, but for this way of growing these plants out of doors, we prefer the common pea-sticks. For this purpose we select moderately stout sticks, about four feet high, and trim away all the small spray, and insert them round the edges of the pots, and one or two in the middle ; by putting them to the plants before they get entangled, and paying a little attention to the training, so that every portion of the framework is covered, they make grand plants for the purpose you require them. Those who have not seen them grown this way little imagine the beautiful appearance they present ; they do best in a rather sheltered position when out of doors. When the pots begin to fill with roots, they must have abundance of water ; on no account must this be neglected, for if allowed to get dry a few times, the plants will get smothered with red spider, but if they are regularly attended to in this respect, there will not be much fear of being troubled with many insects. A dose of manure-water once a week will be highly advantageous after the plants begin flowering, more especially towards the latter end of the summer, when the soil is beginning to get exhausted. It is hardly necessary for us to say that the plants must be brought out of doors as soon as the danger of frost is over, for it is an essential point in their culture to have as much of the growth made in the open air as possible. We have said all that is necessary upon the cultural points, and as regards the best sorts adapted for the purpose, you can have plenty of choice. *Ipomea coccinea*, scarlet ; *I. hederacea superba*, blue and white ; *I. hederacea alba*, white ; *I. hederacea atroviolacea*, dark violet ; *I. limbata elegantissima*, dark purple and white, fine ; *I. Quamoclit*, scarlet ; are all first-rate for the purpose, and you can please yourself whether you grow each kind separately, or mix several colours together ; they have a charming effect either way.

BED OF LARKSPURS.—*W. G. M.*—To get a good display of these lovely flowers give the bed a good dressing of rotten manure, dig it up deeply, and after making the surface in a fit condition for the reception of the seeds, sow in shallow drills a foot apart, and as you will not require the plants to be nearer than six inches from plant to plant, sow thinly to prevent the seed from being wasted ; or, if you prefer doing so, you can sow in shallow boxes or pans, and then prick the plants out into the bed directly they are large enough, choosing a dull day for the purpose. The last method is, perhaps, the best, for it makes the most of the seed. You should not plant them in a bed which enters into a design, for they are too short-lived, but for a separate bed, which can be filled with something else as soon as they are over, they are grand. A more beautiful sight cannot be well imagined, when they are grown in good soil, than a bed of different kinds judiciously mixed, so as all the colours blend harmoniously together. The *Hyacinth flowered*, *dwarf stock flowered*, *tall stock flowered*, and the *German branching* in its several colours are all good.

BASKET PLANTS FOR CONSERVATORY.—*Subscriber.*—Fill your baskets with fibry loam, leaf-mould, and a little decayed manure, and turn your plants out of the small pots in which they are growing, and plant them firmly in the baskets. It is, as you say, much the best to grow the plants to a nice size before turning out, instead of planting them in the basket from the cutting-pots. In giving you a selection of plants suitable for suspending baskets, we may as well observe that almost any of the bedding plants do well for the centre, more especially *geraniums*, *heliotropes*, and *fuchsias*, can be grown to droop over the edges, or trained pyramidally up the centre, *Maurandias*, *Lophospermum* in variety, *Sarifraga sarmentosa*, *Nierembergia gracilis*, *Convolvulus mauritanicus*, *Tropæolum Lobbianum elegans*, *T. Triomphe de Hyris*, *Cereus flagelliformis*, *Mikania scandens*, *Calempelis scabra*, *Kennedy prostrata*, are fine for hanging over the sides. A beautiful effect can be made by placing alternately round the sides nice little tufts of *Isolepis gracilis* and *Poa trivialis argentea*. *Iresene Herbstii* makes a beautiful small basket plant when the branches are brought down and tied underneath. *Achimenes* treated the

same way are splendid, particularly when several kinds are mixed together, *Nephrolepis tuberosa* is also first-rate for the purpose. Keep the plants well watered.

CRYPTOMERIA ELEGANS, ETC.—*Veronica*.—*Cryptomeria elegans* is a beautiful, free-growing, coniferous tree, grand for single specimens on lawns. You may propagate a few plants by taking cuttings in August, and planting them under a hand-glass. We have had "Looker's" tiles in use four years, and they are as sound as when laid down. Roschers, of Upper Ground Street, Blackfriars, make first-class tiles, which are durable. You cannot act better than write to them upon the subject. We feel sure you will have no difficulty in filling your beds and borders with plants that are not quite so evanescent as the ordinary bedding plants, if you refer back to the ten volumes of FLORAL WORLD which you have. We pity you in having to get up two thousand bedding plants every season. It depends entirely upon the size and strength of your Tritomas whether they will flower this year or not.

GREENHOUSE STAGE.—*Subscriber*.—You cannot do better than have a walk three feet wide down the centre, and that will give you four feet six inches on each side for staging. If you have a stage in the centre, your house will be nearly all taken up with path-room. A flat stage, three feet from the ground, and made with laths three inches wide by one and a half thick, placed about an inch and a half apart, will answer your purpose perfectly.

ERECTING A GREENHOUSE AND VINERY COMBINED.—*Canariensis*.—A lean-to with south aspect will be most suitable for you. The slight loss of sun from the projections of your house is of no material consequence. The front should be about five feet high—three feet of brickwork and two of upright sashes—and the back carried up to within a few inches of the height of your wall. We should advise you to have the border for the vines made above the level of your garden, and not sunk, as is usually the case; about ten feet wide will be sufficient. Run a nine-inch wall round it to keep the soil in its place. Have the front wall turned upon arches, and make another wall two feet from it inside the house, so as to form a little bed in which to plant the vines, and then the roots can extend themselves over the bed outside. We should advise you to have hot water or a flue, for the other methods you name will entail endless expense, and be of very little practical service, more specially in such an uncongenial climate as yours. If you have the flue, you will not be able to plant the vines inside the house; therefore you will not want the arches in the front wall or the wall built inside, for the flue will occupy the space of the little bed inside. Plant your vines four feet from each other. *Black Hamburgh* and *Royal Muscadine* are the most suitable kinds for you.

RENOVATING DRACÆNAS.—*A Subscriber* wishes to know what to do with several old plants of *Dracæna terminalis* and *ferrea* that have become leggy, and have lost the whole of their foliage with the exception of two or three leaves on the top, and would be glad of a little information upon their propagation and after management. We know scores of plants in the same condition as this correspondent's. People are afraid to touch them with a knife, whereas nothing will stand cutting about better. A very simple way to deal with your tall leafless plants is to cut them down to within six inches of the soil; and as you wish to increase your stock, cut the stem up into lengths of four inches each, and pot them very firm in small pots, and plunge the pots in a brisk hotbed, where they will soon push out side-shoots. These can be taken off and inserted in sand under a bell-glass; but it will be scarcely necessary for you to propagate to that extent. You should let the old plants get dry before you cut them down; they will soon break, and then should be taken out of the pots, the soil shaken away, and repotted in smaller pots, and kept rather dry for a time. If you keep the soil wet before the roots get established in it, you will very probably lose every root they have; in fact, you must not over-water at any time. Repot the young plants as they require it, but guard against getting them into large pots. Use plenty of drainage, and keep them quiet through the winter, and not throw water over the foliage through that season. Peat, loam, and leaf-mould will grow them to perfection.



F. & A. SMITH'S TRICOLOR-LEAVED PELARCONIUMS.

1. Queen Victoria.

2. Louis Smith.

3. Arlington.

4. L'Empereur.

5. Impératrice Eugénie.

THE FLORAL WORLD

AND

GARDEN GUIDE.

JUNE, 1868.

VARIEGATED-LEAVED PELARGONIUMS.



HERE is nothing more interesting in the history of modern floriculture—or we may better say, perhaps, the history of modern taste—than the rapidly-developed passion for the cultivation of variegated-leaved pelargoniums. It seems as if but yesterday we first heard of the beautiful and then wondrous *Mrs. Pollock*, and now we cannot find a garden where any kind of greenhouse plants has place, but we meet with collections of them; and at the nurseries they not only constitute a very important part of the stock as subjects in constant demand, but the production and distribution of new varieties afford additional stimuli to skill and industry. Since leaf-colouring—as in many instances better adapted for the parterre than flower-colouring—has acquired the importance we long ago predicted for it, gold and silver zonate pelargoniums have been largely employed in addition to the older and scarcely less useful race of white and creamy edged varieties, which were usually described under the collective designation of “variegated.” *Mrs. Pollock*, indeed, has proved to be one of the best of bedding plants; but there are varieties of more recent date superior to it both in habit of growth and distinctiveness of leaf-colouring. Generally speaking, the varieties in which the normal green hue of the leaf gives place to tints of yellow, red, and brown, are more vigorous in constitution than those in which there is any considerable amount of white or cream colour. No one at all familiar with the laws of vegetable physiology will feel any surprise at this, for etiolation and debility are directly related. But it is observable that varieties that are very highly coloured with tints of yellow, red, brown, and black, are invariably less vigorous than the common green-leaved or dark-zoned varieties of the normal type, such as in former days were called “horse-shoe geraniums.” Hence, although the “tricolors” of the nurseries, or “gold zonals” and “silver zonals” of our classification, grow tolerably fast in many cases, when treated skilfully, they do not in any case attain to an effective size and flowering

state in so short a space of time as for the most part suffices for the full development of all the characters of common green-leaved and dark-zoned kinds. Comparative slowness of production, and a great and increasing demand, are sufficient, therefore, to account for the high prices usually charged for these plants, especially in the first season of the distribution of new varieties; and the leading kinds are likely to be costly for many years to come. After all, thirty to sixty shillings is but a small sum for a fair-sized plant of such a splendid variety as *Sophia Cusack* or *Jetty Lacy*, in the first distribution; and that the distributors of varieties known to be of the very best quality find a ready sale at such prices, and have rather to complain of the slowness of the propagation than of any unwillingness on the part of the public, proves that the first price is not by amateurs of means considered exorbitant.

As we have attached a somewhat comprehensive title to this paper, we must be comprehensive in our remarks. By "variegated-leaved pelargoniums," on the present occasion, we understand all the several varieties, of whatever class, which have leaves differing in any material degree in their colour from the typical green or dark-zoned kinds. But their differences are so various, that a classification must be attempted; and the system we have proposed in the "Garden Oracle" for 1868 has met with such general acceptance, that we reproduce its leading features here. We arrange all the variegated kinds in five classes, namely—1. VARIEGATED, such as *Flower of the Day*, etc. 2. GOLDEN-LEAVED, such as *Golden Fleece*. 3. BRONZE ZONAL, such as *Luna*. 4. GOLDEN ZONAL, such as *Mrs. Pollock*. 5. SILVER ZONAL, such as *Italia Unita*. As to the production of new varieties in any or all of these classes, the matter is comparatively easy, and may be dealt with in very few words. We suppose the reader to have had some experience in growing geraniums from seed, and to be familiar with the manipulations necessary for artificial fertilization of the flowers. For the production of seeds it is necessary to have a collection comprising a few of the very best varieties in all the classes above-named, and also a certain number of common zonate kinds, the leaves of which are round, stout, flat, or slightly convex, and marked with very dark zones. *Madame Vaucher* and *Monsieur Barre* are two of the best dark zonals for this purpose, as their leaves are finely formed and deeply coloured, and the plants have vigorous constitutions. The breeder should cross his varieties in every way he can imagine, and he will obtain a variety of results, a large majority of the seedling plants proving, as a matter of course, worthless. But in breeding for leaves it will be found, that when a dark zonal, such as *Madame Vaucher*, is made the seed-bearing parent, and a golden zonal, such as *Sophia Cusack*, is made the pollen parent, a majority of the seedling plants will in due time put forth shoots with golden zonal leaves. In like manner, if pollen is taken from a silver zonal to fertilize the flower of a dark zonal, a majority of the seedlings will be silver zonals. To breed bronze zonals is the most easy task of all, as their own seeds, without artificial fertilization, will produce bronze zonal plants from the first; but another mode of obtaining them is to breed the

golden zonals together—as, for example, to apply the pollen of *Sunset* to the stigma of *Yellow Belt*. When we say the cultivator should cross every way, it must be understood that he should do so with judgment, and keep in mind always a rule which recent carefully-conducted experiments have confirmed as applicable to the case—that the seed parent usually has most influence on the *form* of the flowers and the leaves; and the pollen parent usually has most influence on the *colour* of the flowers and the leaves. To a certain extent, however, the characters of both parents are usually blended in the offspring; this, also, has been amply proved by long-continued and carefully-contrived experiments.

The cultivation of these plants is pretty well understood by the gardening community; but for all that, a few practical remarks may be useful to some of our readers. The whitish or silvery kinds differ most materially in their requirements; for the first a comparatively poor soil, with rather scant supplies of water, are conditions favourable to a free development of their characteristic beauty. For the second a comparatively rich soil and more liberal supplies of moisture are required to insure vigorous growth and abundance of colour. But let there be no mistake; even golden zonals must not be grown in ground just fit for cauliflowers, or have as much water as would suit celery. As a rule, when bedded out, neither class need ever be watered at all, except at the first start, in the event of droughty weather occurring before they have made new roots in their new positions. A good loam, moderately enriched with leaf-mould and rotten hot-bed manure, is the kind of soil in which golden tricolors, and all other kinds in which yellow, red, and brown tints prevail, will thrive to admiration. And for the matter of that, the silvery kinds will thrive in the same sort of soil; but there are two reasons for selecting an *elevated position*, and a rather poor soil with a good proportion of broken brick and sand for silver zonals. In a rich soil, the plants acquire considerable vigour, the green central part of the leaf grows faster than the margin, and the leaves become wrinkled and cupped, and they then hold the dust, and instead of rain washing them clean, it makes them more dirty. Another reason for giving them a rather poor soil, is that vigour of growth imparts to the zone increased blackness, and this mars the silvery effect, subdues their proper glitter, and makes them appear dirty when perhaps they are perfectly clean. These points must be kept in view by the cultivator who desires complete success; and it need not be added, that full exposure to sunshine is an essential condition to the fullest possible production of colour.

In wintering these plants small pots should be employed, a rather poor soil, containing an abundance of grit, and the plants should be kept close to the glass, and have only so much fire-heat as will suffice to keep them safe from frost. Excessive heat, distance from the light, insufficiency of air, and too much pot-room are the prevailing causes of failure. They should be carefully repotted in the latter part of February, or early in March, and the soil for the golden-leaved varieties should consist of good mellow loam and thoroughly rotten hot-bed manure equal parts, and to every peck of

the mixture a pint of sharp sand. The silver kinds will have sufficient vigour in a mixture of three parts loam, and one part each of rotten manure and sharp sand. It is a great help to the formation of new roots to plunge the pots in a tan-bed, or nearly-spent hot-bed, in which there is a very slight warmth. But they will do very well without any such aid if in a sunny house, and taken proper care of on ordinary shelves. An abundance of air must be allowed at all seasons, except of course during strong gales or frosty weather, for the colours are sure to be washy if the plants are kept too close. Watering should be always done with care. To wet the leaves will not, as a rule, do them any harm, and, indeed, if they become dusty, they may be washed, but, as a rule, wetting the leaves is not desirable, and in winter it should be carefully avoided.

When looking over the immense and beautiful collection of Messrs. F. & A. Smith, of Park Road, Dulwich, lately, we selected five varieties as subjects for the plate which accompanies this article. These five we consider amongst the best in the two leading classes of gold and silver zonals. It will be observed that the leaves are well formed, and distinctly and richly coloured. With a view to assist readers in the formation of collections, we subjoin the names of a few of the most distinct and beautiful varieties in the several classes; and as we possess nearly all the varieties that are in cultivation, we shall be ready to add to this limited selection for the benefit of any of our readers who require a greater number of varieties than we now recommend.

A SELECTION OF VARIEGATED-LEAVED PELARGONIUMS.

1. VARIEGATED-LEAVED. — *Daybreak*, one of the neatest for bedding and pot culture: *Rosette*, most beautiful for pot culture, also fine for bedding: *Flower of Spring*, brilliant white-edged bedder, and fine for pot specimens: *Oriana*, creamy or sulphur coloured, compact habit; good bedder: *Lady Palmerston*, very distinct, and produces abundance of lively rosy flowers: *Queen of Queens*, fine bold whitish leaf and brilliant scarlet flowers.

2. GOLDEN-LEAVED.—*Aureum*, sent out by Messrs. F. & A. Smith, is a splendid golden bedder: *Golden Fleece* surpasses *Cloth of Gold* and *Gold Leaf*: *Golden Chain* is the grandest of all for those who can manage it; the plants should be three years old and very dwarf and bushy to make a fine effect: *Crystal Palace Gem*, sent out by Messrs. F. & A. Smith, is a brilliant golden bedder: *Pet of the Parterre*, from the same raisers, is also fine.

3. BRONZE ZONALS.—One of the most beautiful of this class is *Artemus Ward*, sent out by Messrs. Rollison & Son; the habit is dwarf and bushy, the leaves have a sulphur-coloured ground and a neat orange red and chesnut zone; it makes a dazzling bed: *Mrs. Charles Barry*, one of F. & A. Smith's varieties, is decisive and good: *Luna*, *Goldfinch*, and *Beauty of Oulton* are three of the best in this series.

4. GOLD ZONALS.—*Antagonist* is a fine bedding plant, with leaves finely margined with yellow and zones richly coloured orange red and black: *Defiance* has a flat smooth leaf, with clear light

yellow margin, and zone consisting of carmine, red, and black, which occasionally blend and produce a mulberry tint: *L'Empereur* has a broad yellow margin, and brilliant zone composed of fiery red and black; one of the grandest tricolors known: *Louisa Smith* far surpasses Mrs. Pollock in colouring, and is equally robust and free in growth; it should have a place in every garden: *Sophia Cusack*, *Sophia Dumaresque*, and *Lady Cullum* are superb varieties, very much alike; the first of the three is, no doubt, all points considered, the best, and indispensable even in a small collection: the following are also essential, namely, *Mrs. Pollock*, a fine bedding plant: *Sunset*, a very showy bedder, and makes a very handsome specimen: *Mrs. Benyon*, a brilliant bedding plant: *Monarch*, one of the immense number of fine varieties raised by Messrs. F. & A. Smith, the leaf is slightly convex, with narrow yellow margin and very broad zone of red and black; this makes a beautiful pot specimen, and is invaluable for bedding.

5. SILVER ZONALS.—This is a faulty family, and is likely ever to be so, as the characters required are of necessity accompanied by debility of constitution. *Italia Unita* is essential both for its intrinsic merits and its historical fame: but the two best of the series are *Imperatrice Eugenie*, the margin creamy white, and fine zone of lake colour with only a few streaks of black: and *Queen Victoria*, with creamy margin and magenta pink zone, the habit vigorous but extremely neat. The following are also desirable—*Countess*, *Silver Star*, *Lady of Shallot*, *Ariel*, *Sultana*; all distinct and tolerably vigorous in constitution.

In a future paper the best of the new kinds that are to be sent out in the present season will be noticed. S.H.

HERBACEOUS CALCEOLARIAS.

BY GEORGE GORDON.



OW that these plants are likely to be more generally grown than they have been for the last few years, practical remarks upon their cultivation will not be out of place in the FLORAL WORLD. Very few plants pay for good treatment as these do, or contribute more liberally to the beautiful appearance of the conservatory through May and the early part of June. With a little management to have a succession, the plants can be had in bloom very easily from the beginning of April to the end of June. I have lately seen whole housefuls of grand plants, which measure a yard across, and unless any one is possessed of a pretty lively imagination, they would be unable to form any idea of the charming appearance they presented. I shall not say that plants that size are grown without trouble, or that they are very easily managed. To advance anything of the kind would be equivalent to my confessing a very large amount of ignorance upon the subject which I am writing about. To make the most of

the capabilities of plants of any class, no matter what, a certain amount of knowledge, combined with practice and patience, is necessary to attain to very successful results. In case any of my readers should happen to fail in succeeding to the extent of their expectations, I can only say that they must not blame the system which I advocate, but rather consider whether they have not neglected one or more of the cultural details upon which, likely enough, the whole matter hangs. Success in growing plants is never attained without a close attention to minor matters; for, however vast a cultivator's knowledge may be, unless he carries his knowledge into execution, his plants will never do him much credit.

Calceolarias of the herbaceous section are generally raised from seed every year, which perhaps, taking all things into consideration, is the best plan for ordinary decorative purposes; but there is no reason why the best plants should not be propagated annually from cuttings, for they strike readily with ordinary care, and the cultivator has this advantage with cuttings, that he knows what he is growing, and no one would propagate worthless kinds. With seed there is always a certain risk, more or less, according to the quality; but with seed from first-rate strains, there need be but little fear upon this head, for there will be but few inferior flowers, and they are showy, and help to bring out the superiority of the others. Unless seed from the best strains can be afforded, I should advise amateurs, or, in fact, growers of all classes, to save their own, then they have no one to blame but themselves if they have inferior flowers.

Seed saving is not such an extremely difficult affair as is generally imagined, though it is attended with some little trouble. To make sure of seed, every flower will require fertilizing; but this is an easy matter, for, on examining the flowers, the pistil will be readily observed, standing straight out in the centre of two stamens. The pollen must be removed from the stamens with the point of a fine camel's-hair brush, and be placed upon the stigma. When this is done the process is complete. To attain the best results, it is necessary to observe that, if the flowers from which the pollen is obtained, or the seed saved, are defective, whether in shape, size, or colour, an inferior progeny will be the natural result. The seed-bearing parent should have fine, large, well-shaped flowers, and the pollen parent should be selected for pure bright colour, or distinct markings; if of good size and shape so much the better. The plants should be kept in a cool and airy house until the seed is ripe, and the seed-pods must be taken off, and laid upon clean sheets of paper before they burst, or the seed will be lost. Plants from which the seed is obtained seldom do much good towards furnishing cuttings, therefore it is as well to throw them away as soon as the crop is gathered.

Those plants which are intended to furnish cuttings should have the flower-stalks removed immediately the beauty of the flower is past, and the plants plunged into a bed of ashes, or cocoa-nut fibre refuse, in the shade, but not under trees, for the deficiency of light and drip of moisture combined would kill them long before the time for taking off the cuttings had arrived. It is hardly necessary for

me to say that the plants will require regular attention as regards watering—quite as much as they did before the blooming season. Directly the cuttings are large enough to handle, I take them off, and pot them separately in small pots, and stand the pots in a cold frame facing the north. I find they do better than when the frame is exposed to the full force of the sun, for they can be kept cool and moist, and at the same time have plenty of light without being scorched up. I shall not enter into any details for the after-management of the cuttings, for the same treatment will be required as for the seedlings, and as that is the most general way of raising a stock, I will commence at the beginning. Before saying anything about that part of the question, however, I will observe that the cuttings should be taken off near the main stem, and the bottom leaves trimmed neatly away, and the cuttings inserted firmly. The pots should be filled with loam and leaf-mould, and plenty of sand.

The time for sowing *calceolaria* seed is variously fixed by different writers from July to September, and each one has the notion that seed sown at any other time than the one he recommends, will not produce plants that will give satisfactory results. For my own part I do not attach much importance to a few days either way, but I should advise a couple of sowings, say one the middle of July, and the other a month later; the first sowing will produce plants for blooming in May, and the last will give plants that will bloom from a month to six weeks later. It will not be necessary for me to go over the same ground twice, therefore it must be understood that the same treatment will apply to both crops.

The preparation of the seed-pans is a matter of some consequence, for if not properly prepared, the seed very often fails to germinate. I fill my pans about half full with crocks broken rather small, and cover them with a layer of half-rotten leaves, cocoa-nut-fibre refuse, or the lumpy part of the siftings of the soil, which forms the top layer to receive the seed; the remaining space in the pans is then filled with a compost composed of fibry loam and thoroughly decayed leaf-mould, with an abundance of silver sand; this layer should be chopped up fine but not sifted, for when the whole body of soil is sifted, it gets too close for the young rootlets to run in freely. It is desirable to sift a small portion to cover the surface with, about a quarter of an inch deep, upon which the seed is sown, after it has been made perfectly level with the bottom of a small flower-pot or piece of board. Before sowing the seed give the pans a good watering; the seed often gets displaced when the watering is done immediately after sowing it. The seed should be sown as regularly over the surface as its minute character will admit, and a slight covering of sand sprinkled over it. The after disposition of the seed-pans depends entirely upon the means at hand; one very good plan is to put them under handlights upon a north border, where the sun will not catch them, or in a frame under similar circumstances; in either case place the frame or handlights upon a good thick bed of coal ashes. Where the pans are to be placed in a greenhouse or pit, with a general collection of plants, they should be covered with a piece of glass and kept shaded. Whenever the soil requires water,

place the pans in a sufficient depth of water to reach to within an inch of the rim, and let them remain a sufficient time to get thoroughly moistened; this is the way for dealing with all kinds of small seeds that will not vegetate kindly under too deep a covering, for when watered with a watering-pot, the water washes the soil into heaps, and covers one part with too much soil, and the remaining part is left bare—two very unfavourable conditions for germination.

When the young plants begin to make their appearance above the soil, admit air, increasing the amount in proportion to their progress and strength. The plants should be potted off into three-inch pots when they get a couple of rough leaves about the size of a shilling, and be returned to the cold frame and kept close for a few days until they get established in their new quarters, when air must be admitted plentifully. Remove the lights in the evening, and let them remain off all night, to expose the plants to the falling dew, and replace them in the morning after giving them a moderate sprinkle of water overhead. These plants require a cool, moist atmosphere, with an abundance of air, for when the air is kept stagnant the foliage gets infested with mildew, and when there is an insufficiency of atmospheric moisture they soon become a prey to green-fly, red-spider, and thrip. Repot into five-inch pots as soon as the roots have filled the first pots, and proceed thus until they are in eight-inch pots, which will be large enough to flower them in for all ordinary purposes. With the approach of frost the lights must remain on during the night, with plenty of ventilation through the day; towards the end of October they will do best upon the greenhouse stage and near the glass, where they will get plenty of air but not exposed to cold draughts, for calceolarias will not stand rough treatment with impunity. In the spring pinch out the main flower-stalk, to encourage the production of numerous side-shoots, which will make fine large heads of bloom if neatly staked to prevent their getting broken about.

To save repetition, I will observe that the soil in which the calceolaria has always grown to my satisfaction, has been composed of two parts mellow loam, such as that obtained from the surface of pasture land, say six inches deep, and which is full of the roots and fibres of the grasses growing in it, and one part each of cow-dung and leaf-mould, both rotted to a powder, and not quite one part sharp silver sand. The whole mass is to be chopped up and the constituents thoroughly incorporated together. Pot the plants firm, and place a good drainage in the bottom of the pots at each potting.

These plants are especially impatient of stagnant moisture at the roots, and water must be applied cautiously at all seasons, for they must not get dry enough to flag, or be kept too wet. Weak manure-water twice a-week, after the plants begin to grow vigorously in the spring, will assist the production of an abundance of fine large flowers and luxuriant healthy foliage in a wonderful manner. Always give the plants sufficient water to soak the balls thoroughly, and then leave them alone until they require another application, for nothing acts so injuriously upon them as constant dribblings of water

at the roots. If mildew makes its appearance, dust the plants with flowers of sulphur at once, before it gets ahead, and smoke the house or frame with tobacco paper directly there are any signs of thrip or green-fly; let the foliage be thoroughly dry, and as the leaves are tender, and consequently very susceptible to injury from strong smoke, give two or three weak applications in preference to one strong one. A golden rule in growing these plants is to give them a smoking directly the first enemy is seen, and then the stock will always be clean and healthy. As the flower-stalks push up, give the plants plenty of light to make them stout and stocky. It is hardly necessary for me to say that shading from bright sunshine after March until they are turned out of doors will be beneficial.

In conclusion, I cannot help expressing my opinion, that if amateurs who have but limited space would confine themselves to a few good things, calceolarias being amongst the number, and grow them well, the results would be far more satisfactory than crowding into a small place a host of things, one half, in all probability, being little better than rubbish, and more suitable for the rubbish-heap than a gentleman's greenhouse. Tastes and opinions differ. I hope I shall not offend by this plain and well-meant hint.

COOL ORCHIDS.

BY AN AMATEUR CULTIVATOR.



A VAST amount of misunderstanding has arisen respecting growing orchids in low temperatures, for some people indulge in the supposition that the plants can be grown in an ordinary greenhouse or conservatory. It is a fallacy, for none of the plants will stand the air which the usual stock of greenhouse plants require. No plants are so valuable where the accommodation is limited, for they do not soon overgrow the space allotted them, and no plants furnish an equal amount of beauty in the some contracted space. If I say that orchids are comparatively easy to grow, I shall very probably be met with the assertion that all plants are easily grown when the cultivator is thoroughly acquainted with their requirements; I will admit this, and confidently assert that few plants can be grown so well with the same amount of labour and attention as these. To make matters clear, I will give you my opinion as to the best kind of house for growing cool orchids in, where expense is an object, for where this important consideration does not thrust itself forward, much can be left to the individual taste. Though I am opposed to the idea which exists in some quarters, that cool orchids can be grown without trouble or expense, I am desirous of encouraging their more extensive culture, upon the ground that no more skill is necessary than that required for a mixed collection of greenhouse plants, and that no more expense is incurred by it. No form of

house is better than an ordinary span roof, about ten or twelve feet wide, with a three-foot path down the centre, and a flat table or stand on each side to hold the plants. The side table should be about a yard high, and the side-lights two feet; this will make five feet altogether. If the roof is eight feet high at its apex, there will be plenty of head room, and the roof will be sharp enough to carry the water off quickly, and prevent any injury arising from drip. The ventilation should be provided for, by placing small ventilators along the walls on each side opposite the pipes, and small sashes along the roof to allow the escape of the heated air. It is perfectly immaterial whether the roof is made with sashes and rafters, or fixed; but it is not desirable to have the glass in too large squares, for the cold air gets in between the laps, and does no end of mischief. A foot wide should be the outside; but nine inches is much better. The side tables should come up level with the top of the brick-work, which should support one side, whilst the other side near the path must be supported with stout posts. Inch boards will make capital tables. Though slates will be more durable, they are too expensive to talk about now, and we will confine ourselves to wooden ones. A strip of wood about four inches wide should be tacked along the side, and the tables covered with that depth of cocoa-nut fibre refuse. Two four-inch pipes near the wall, under the tables on each side, will furnish all the necessary heat. For a house of this description, which is simplicity itself, the finest collection in the world may be grown, and I would back it against all complicated structures that would cost ten times the money.

Houses of this description exist in two-thirds of the FLORAL WORLD gardens, and, in many instances, may be turned to a much better account than they now are. For fear of being misunderstood, I will say, at once, that a span-roofed house is not imperatively necessary, for a small lean-to will do equally as well, no matter which point of the compass it may face, excepting the north. Some people have gone so far as to recommend north aspects for cool orchid houses; but I, for one, do not believe in them, for the plants fail in obtaining that amount of light and solar warmth through the winter which is so essential to their well-doing.

The question of the house adapted for growing cool orchids being to my mind settled, we will turn our attention to the plants suitable for growing in it, and a few hints upon their management.

I have advised the stages to be covered with cocoa-nut fibre refuse, to save the expense of making an open tank underneath, to keep up a steady atmospheric moisture, and at the same time to be equally as well off as those who have them. When the plants are watered the moisture will run down and make it damp, from which a constant vapour will arise, and be of immense advantage in keeping the plants in vigorous health, and render the atmosphere of the house like that of their native habitats. It will be advisable through the summer to occasionally pour a few cans of water over the refuse, to keep it thoroughly moist, for it may happen that the water applied to the plants is not sufficient for that purpose. From March to September the temperature should range from 55° to 65°,

with a rise to 70° in very hot weather. This temperature will be sustained with the help of but little fire-heat, for the solar heat after April will be quite sufficient, excepting an occasional sharp frost sets in during May, when a little fire will be needed. The atmosphere must be kept charged with moisture, by pouring plenty of water upon the path and floor in addition to the stages. In skilful hands, a syringing overhead in the afternoon of hot bright days will be beneficial; but I am afraid to recommend it here, in case any beginner should overdo it, and ruin the collection. Keep the soil in which the plants are growing moist, but not wet, for if they are kept too wet every root will perish. Soft water should be used, and should be a few degrees warmer than the temperature of the house. In the winter very little water will be required—just sufficient to keep the bulbs plump. The plants will suffer more from having too much than too little. The temperature from October to the end of February should range from 45° to 50°, but be kept within these limits, and the atmosphere kept much drier.

Potting plants, and the most suitable material for the purpose, must next engage our attention. All the species which I shall name will thrive well in a mixture of peat and sphagnum moss, thoroughly incorporated together, after the peat has been broken up roughly and the fine soil removed. It is often a very difficult matter to procure good peat, and unless the peat is good and full of fibre, it is worse than useless, for it will soon go sour, and nothing will then thrive in it. When this is the case, procure some *short cocoa-nut fibre*, and use it with the moss, in the same proportions as peat. This short fibre must not be confounded with the "refuse," for it is a different material altogether; the one being the clippings from the mats when they are trimmed up, and the other is a brown powdery substance derived from the husks when they are crushed in the mill. The fibre should be well moistened before its amalgamation with the moss, and then the process can be completed with but little trouble. All the orchidaceous plants will root freely and grow well in the mixture of moss and fibre. The pots should be filled to within three inches of the rim with rough pieces of crocks, and the plants potted firm and sufficiently high for the base of the bulbs to stand three or four inches above the level of the top of the pot, to prevent moisture settling about them, which mishap would in all probability cause the loss of the entire plant. The pots must be stood upon inverted flower-pots or saucers, to allow the free escape of the water. I must not forget to add, that the best time for repotting is just before the plants begin to make new growth, in the case of inexperienced cultivators; but with skilful hands, after the roots begin to elongate is a capital time. The plants should be placed in a cool dry house, if convenient, when they are in bloom, for the flowers last in perfection much longer, as damp is so very injurious to them. Many of them can be removed to a sitting-room through summer without receiving any harm; the chief point is to keep them dry, and out of cold draughts. If they remain in the house in which they are growing, they should be removed to the coolest end, and care be used to prevent splashes of water falling on the flowers.

Orchidaceous plants, like those belonging to other classes, have their enemies, but whether they become numerous, and do a large amount of mischief, rests entirely with the cultivator, for all can be kept in subjection with an ordinary amount of time and attention. Cockroaches are troublesome if not kept under, for they eat the growing point of the roots, and thus prevent them performing the functions allotted to them. Chase's beetle poison is a capital remedy. Lay down a few lumps in the evening amongst the pots, and take it up in the morning to prevent it getting stale. Hundreds will be destroyed that way. As they feed at night, a search should be made for them with the lantern after dark. It must be done cautiously, for they are particularly quick in their movements. Small snails and woodlice are also destructive in their dealings, and injure the plants in much the same way as the cockroaches. The first pest can be easily trapped with large potatoes cut in half, and hollowed out, to admit the ingress of the enemy. These must be gone over every morning, and the snails shook off into a can of hot water. A few woodlice will also creep under the potatoes, but the surest way of dealing with them is to lay a few five-inch pots, filled very loosely with dry hay, upon their sides amongst the plants. No system equals this for destroying this pest. To clear the plants of thrip, and a small white scale which is excessively partial to these plants, wash the foliage and bulbs thoroughly with clean water and a piece of sponge dipped in a lump of soft soap, and when the whole of the plant is gone over in this way, sponge it with perfectly clean water. If thrip and green-fly get ahead, smoking with tobacco paper must be resorted to with promptness; but if the sponge is put into requisition upon the first appearance of the enemy, no smoking will be necessary. The foliage of orchidaceous plants is very susceptible to injury from tobacco smoke, therefore it must be applied with caution. Three or four weak applications are better than one very strong. A proper degree of humidity is the best remedy for red spider: it will not make its appearance unless the atmosphere is too dry. Washing the foliage as advised for thrip is the best remedy.

I am now going to give a selection of fifty kinds, all good and cheap. There is not a bad one amongst them. I might have named a few high-priced ones that are rather better in their respective genera than these which I have selected; but I flatter myself that a better fifty cool orchids could not be had for love or money, if we take all things into consideration. I have gone through a list issued by one of the largest importers of these beautiful plants, and I find that the whole lot, in nice, healthy, well-established plants, can be had for thirty-five pounds, taken separately, and I have no doubt that if bought in one lot, they could be had at a reduction upon the gross amount. Orchids have this advantage over other plants: when grown well, they increase in value every day, and good specimens will always realize fair sums; whilst bedding geraniums, for which a couple of guineas each were paid, will not be worth so many shillings after being in the purchaser's possession a few years. I have already taken up too much space, or I would give a brief

description of them ; but as it is, I will enumerate my selections, and assure my readers that, choose where they may, they will not be disappointed.

A SELECTION OF FIFTY COOL ORCHIDS.

Barkeria Lindleyanum, *B. Skinneri*, *Brassavola glauca*, *Brassia verrucosa*, *Cattleya citrina* (this does best fastened to a block, and suspended with the foliage downwards, as it grows in its native habitat on the under side of branches of large trees), *C. Mossiæ*, *C. Trianaï*, *Cœlogyne cristata*, *C. speciosa*, *Cymbidium giganteum*, *Cypripedium insigne*, *C. venustum*, *Dendrobium chrysanthemum*, *D. heterocarpum*, *D. nobile*, *D. speciosum*, *Epidendrum atropurpureum*, *E. erubescens*, *E. macrochilum*, *E. vitellinum*, *Lælia acuminata*, *L. albida*, *L. autumnalis*, *L. majalis*, *L. superbiens*, *Lycaste aromatica*, *L. cruenta*, *L. Skinneri*, *Maxillaria Harrisonii*, *Odontoglossum cervantesi*, *O. citrosimum*, *O. grande*, *O. Insleayii*, *O. maculatum*, *O. nebulosum*, *O. pulchellum*, *O. Rossii*, *Oncidium crispum*, *O. flexuosum*, *O. leucochilum*, *O. pulvinatum*, *Pleione maculata*, *Sophronitis cernua*, *S. grandiflora*, *Stanhopea insignis*, *S. oculata*, *S. Wardii*, *Trichopilia tortilis*, *Zygopetalum crinitum*, *Z. Mackayii*.

A DRY SEASON.

HINTS FOR THE CULTIVATION OF VEGETABLES.



THIS is likely to be a dry season—at all events, it has been rather dry since the year began. If it continues, peas and beans will not last long, and late peas will be nowhere. Cauliflowers on poorish ground will button, but on very rich, heavy soil they will be fine; most cabbage worts, intended for summer use, will be poor; carrots and parsnips will be small and forked; lettuces will be lean, and in a hurry to bolt; celery will be small, unless abundantly watered, and potatoes will be plentiful, smallish, and of the finest quality.

There is time, even now, to adopt measures for averting some of the evils incident to a hot dry season. As peas will soon be past, kidney beans must be sown in more than ordinary quantities, as they stand drought remarkably well. Sow at once a few extra rows of Dwarf French Beans, such as *Negro*, *Speckled*, and *Cream colour*. About the 10th of June, sow a few extra rows of Runner Beans, such as *Common Scarlet* and *White Dutch*. These will bear plentifully in the latter part of the summer, and continue till stopped by frost. Out-door cucumbers and marrows are likely to do extra well this year. No doubt the reader has, by this time, planted out sufficient; but if there be ground to spare, it will be well to sow a few patches of seeds in the spots where the plants are to remain. The best plan would be to make hills of mixed manure and loam at suitable distances, and sow on these hills; but if labour cannot be spared, sow anywhere on banks, borders, and beds. The best out-door

cucumber is *Henderson's A 1 Ridge*; the best marrow for a hot season is *Hibberd's Prolific*, which Messrs. Barr and Sugden alone possess true. For late supplies of lettuce, choose shady ground, manure abundantly, and sow thinly. Do not transplant, but simply thin the rows, and let them heart where sown. The *New Zealand Spinach* is a delicious vegetable, and will endure any amount of drought. It is late to think of it now; at all events, our plants cover quite a square foot of ground already, and will soon measure a yard over. If we had not any, however, we would endeavour to obtain good seed, and would sow at once, putting two or three seeds together at distances of two feet. Half a dozen plants are enough for the most spinach-loving family. If there is an abundance of marrow plants on the ground, a certain few may be kept to supply spinach. Pinch out the tender tops, and cook them as spinach. If properly done, they are delicious. If cucumbers come in plenty, and other vegetables are scarce, some of them may be cooked to advantage. With a stewed steak, slices of cucumber are delicious.

Mulching is a great help in times of drought. Sea-weed makes the best mulch in districts where it is obtainable. Half-rotten stable manure is, of course, admirable, and it does not lose much of its goodness by exposure to the sun. Grass mowings may be turned to account amongst cauliflowers. In giving water to open-ground plots, put abundance on a small plot, so as to soak it thoroughly, rather than spread the same quantity over so large a space of ground as only to moisten the top crust. It is easier to waste water than to use it properly, for the process of wetting a large extent has the appearance of business, but the next day's blazing sun will prove to the thoughtful observer that mere surfacing is a delusion. A tolerably good substitute for water is frequent hoeing, to keep the surface rough and broken, for this enables the soil to absorb immense quantities of dew.

S. H.

A BUDGET FOR AMATEURS.

SPECIMEN PLANTS FOR WINTER AND SPRING FLOWERING.



DROCURE and sow in pans, as soon as you can get it, a lot of the seed of *Cyclamen persicum*; grow on the seedlings as fast as you can in cool pits, or in a low, light, and moist greenhouse—the pits being best, however, for the summer work—and keep the plants growing all along through winter and every other season. To dry off this *Cyclamen* is bad gardening. It is no more in want of “drying off” than a rush! But it is only one of the many things that are often “done to death” or mediocrity by the drying process. In eighteen months from the time of sowing the seed, any one with common cultural skill may produce such plants as those shown by the Messrs. E. G. Henderson at the spring shows in London—such plants as may, in fact, be seen in their interesting *Cyclamen* house.

HOW TO GROW THE HERBACEOUS CALCEOLARIA.

What a fine thing it is when well done!—*regularly* and well. To do them annually, you must sow about the end of July—say about the 22nd—in pans of fine sandy earth, placed in a rather cool, moist, and *shady* intermediate stove. Until well up, and until the sun waxes rather weak in autumn, you must shade the pans and little seedlings with a newspaper—(mind the house must be moist and shady in addition to this)—and you must keep potting away at your seedlings all the autumn and winter. Never let them get in the least degree pot-bound. They vary wonderfully, as well in constitution as in marking; and you will hardly have two plants alike as to strength or size, with all gradations down to the tiniest. Therefore you must always be “on the look-out” for the most advanced, and have a potting turn once a fortnight. The soil should be a light rich loam, with plenty of sand and leaf-mould, and in addition a little rather fresh horse-droppings. By the middle of February you will be able to introduce your strongest batch to the greenhouse, to be removed after a week’s stay to comfortable cold pits, in which the plants may be now and then fully exposed to the mild air or gentle rain. You will follow, weekly, with the remaining sizes and batches, till all are in the cold pits gathering final strength for flowering. Above all other plants, herbaceous Calceolarias must be kept *thoroughly* clean.

HOW TO IMPROVE THE BLOOM OF YOUR CROCUSES.

Allow the leaves of all crocuses to be fully developed, and to grow until they stop of their own accord, and you will have fine flowers the next season. If you catch a gardener plaiting the leaves or tying them in knots, kick him out.

A BRILLIANT FLOWER-BED.

Select or make a small isolated bed in some spot fully exposed to the sun, and let it contain fine sandy peat, or *fine sandy* soil of any other kind; and let it be well drained, of course; and place a few rustic stones round the margin and through the bed, half or more buried in the soil, so that the whole will be elevated a little above the grass level. Over the bed, beside the stones, etc., plant a few, a select few, of the best dwarf *Sedums* and *Saxifrages*, of the encrusted section; and, perhaps, if you are fond of them, a few of the very choicest spring bulbs, such, for instance, as that little Siberian exquisite *Puschkinia scilloides*, just to vary the bed a little at all points, and give it unsurpassed charms in spring. But for the brilliancy and chief beauty you must have a number of plants of a very beautiful hardy perennial, *Calandrinia umbellata*. Make the groundwork of your bed of these, and put a few good specimens on the little elevations about the highest points and tiny rocks in your little bed. Plant in spring, give a good soaking of water in dry weather, and wait for the result. The *Calandrinia* is a continuously blooming plant, and when it begins to flower, if well grown, you may expect a display of the purest magenta-coloured flowers for many weeks.

O'SHANE.

THE VILLA KITCHEN GARDEN.—No. XI.

BY J. C. CLARKE,

Head Gardener at Cothelston House, Taunton.



THE cultivation of SUMMER SPINACH is so easily accomplished, that I need not say much respecting it; nevertheless, it may be useful to add, that, instead of sowing it in hot, dry positions, as is usually done, between rows of peas and other crops, if we wish to have this esculent in perfection during the hot summer months, a cool north border or in some out-of-the-way border, where the sun's rays do not penetrate too strongly, is the best, not only to secure its succulent character, but also to have it longer in duration, and fit for use after the winter spinach is past. There should be two crops sown, the first in the beginning of May, and the other in the middle of June. If sown on such a spot as I have just advised, these two sowings will be sufficient to afford supplies until the autumn sown is fit for use. But if necessity compels the cultivator to sow it on the open quarters, then a sowing every three weeks from the beginning of May to the middle of July will be necessary; but only a small quantity should be sown at any one time, a row fifty feet long will suffice for most families at this season of the year. In every case it thrives best and produces the best results on deeply-dug, well-manured land.

WINTER SPINACH, being a more substantial crop, requires more care, and altogether a better preparation to induce it to succeed in all cases; upon the average of seasons, the best time of sowing it is from the 15th to the 25th of August; the spot should be moderately well dressed with rotten manure, and deeply dug to secure the carriage of the water from the winter rains below its roots, and if the soil should contain even only a few of the wireworm, or the black grub of daddy longlegs, a good dressing of fresh slaked lime should be laid on and dug in previous to sowing. This will not only materially prevent the ravages of those pests, but it will add to the fertility of the land by speedily decomposing any organic matter that may be in the ground from previous crops, so that the spot will in every sense be the better for its application. The above preparations being carried out, we have only now to consider the sowing and after-management of the young plants. The seed should be sown in drills fifteen inches apart, rather thinly, and when it is showing its broad leaf, it should be thinned out six inches apart from plant to plant, and the only after-management it requires is to keep it free from weeds. The *round-seeded* kind is the one most in favour for summer use, while the *prickly* variety is considered the most hardy for winter use.

TURNIPS are another summer crop not always well-managed in villa gardens, yet few crops pay better for liberal culture. They require a rich open soil, and, for summer use, to be sown at intervals of every three weeks, from the end of March until the end

of June. The proper way to get these in perfection from June to September, is to have rich fertile land, deeply dug, and to be sown in drills eighteen inches apart, and the plants to be thinned out at twelve inches from plant to plant. Turnips cultivated in this way may be grown in the height of summer in ordinary seasons, fit for use in eight weeks from the time of sowing. All that they require is plenty of room for the development of their leaves, and the soil deeply hoed between the rows every week, while there is room to get between them without bruising the leaves. The common cause of failure is not so much the fault of the season or the soil, as bad management, for too many allow more than double the quantity of roots upon the soil than it can support. The consequence is they soon get into a starved condition, and then follows an attack of mildew, and the bulbs soon get hard and uneatable, through a lack of nourishment to enable them to mature their growth in that healthy active state which they require to be presentable.

The routine for a winter supply of these useful vegetables is almost a separate matter, because the heavy dews and autumn rains, with diminished sunshine, render the season much more favourable for a quick growth, consequently we have altogether a better crop, and with less trouble; but then, as this is a vegetable equally esteemed by some in summer as in winter, we must adopt the means suggested above to secure them in the best condition consistent with the time they are in use. The distance between the rows for winter supply may be reduced to fourteen inches, and the plants nine inches apart in the rows, always bearing in mind that they require early thinning, and the hoe plied frequently between them, not only to keep down weeds, but to admit moisture and the action of the sun and air upon the soil. The first week in August is the best time to sow for winter. There are many varieties now in use, but the best for all purposes is the *Early Stone*; secure that sort true if you can, and if you give it liberal culture it will prove as good or better than many more now recommended with high-sounding names.

MIGNONETTE THE WHOLE YEAR ROUND.



THE Mignonette (*Reseda odorata*) is a native of Egypt; it is, under ordinary treatment, an annual plant, growing from six inches to a foot in height, and is hardy enough to stand this climate during the summer months; but it will not survive our ordinary winters, unless in some very sheltered situations. In order, therefore, to obtain a regular succession, recourse must be had to pot or box culture, which will form the subject of the following remarks:—

The beginning of February is early enough to make the first sowing for a spring supply. The soil which should be used should consist of one-half loam, one-fourth part rotten hotbed manure, and one-fourth part leaf-mould, well mixed together, and used in as rough a state as possible; the worms (if any should be in the soil) ought

to be carefully picked out, or they will cause great injury to the plants by stopping the drainage and disturbing the roots. The pots known as "forty-eights" will be large enough for this sowing; and these should be prepared by placing a crock over the hole in the bottom, and laying on this about two inches of the roughest of the soil, after which they should be filled with soil, pressed evenly and firmly, leaving the surface level within half an inch of the rim. On this the seed should be sown regularly, and, if its quality can be depended on, two dozen seeds will be enough for each pot; they will come up stronger than if sown thicker. Sift a little soil over the seeds, and give this a gentle pressure with the back of the hand, leaving the surface smooth and even, then give a gentle watering with tepid water, which will warm the soil and assist germination. Plunge the pots in a frame with a gentle bottom-heat, and keep the lights shut till the plants begin to appear; afterwards admit a little air every day, if the state of the atmosphere will allow; but at all times avoid the admission of currents of cold air, as Mignonette suffers severely from too rash an exposure to cold winds. When the plants become a little inured to exposure, remove the lights every fine day, which will prevent them from being drawn, and better enable them subsequently to support themselves. As soon as the seed-leaves are fully developed, thin out the plants, leaving at this time ten or twelve in each pot; this number should be retained, as they are liable to damp off if over-watered, and especially if the weather should happen to be dull. When they have made three or four leaves, thin them out to five plants, which number is sufficient for a 48-sized pot; at the same time stir the surface of the soil, which often becomes caked by continual watering, and thereby prevents the access of air to the roots. When the sun begins to act powerfully upon them, a thin shading for a few hours during the heat of the day will be of great service by obstructing its rays, which give to the foliage a yellow and unsightly appearance. When they have grown three or four inches, they will require to be tied up, to prevent them from falling over the sides of the pot. In doing this, place five small stakes at equal distances close by the edge of the pot; then pass a strip of matting with a turn round each of the stakes, and fasten it; it is necessary to leave the stakes two or three inches higher than the plants, as I have found them sometimes to require a second tie. If the roots at that time have found their way through the bottom of the pot, they must be broken off, or the plants will receive a severe check when finally removed. In replunging them, give them sufficient room to prevent their being drawn. They will require little more attention besides giving plenty of air, watering, and shading, till the middle of May, when they will be in good condition for removing to the conservatory.

The next sowing will require to be made about the beginning of April. The same compost as previously recommended should be used. For this sowing, however, I would prefer 32-sized pots, and would allow seven plants to remain in each; by thus having a greater body of soil, it will be found to retain moisture for a greater length of time, and the plants will not be so liable to receive any check by

an accidental omission of watering. In other respects, the treatment already detailed should be followed. By the middle of May, if the frames should be wanted for other purposes, the pots may be plunged in a shady place out of doors. They will come into bloom about the beginning of July. Other successional sowings should be made about the beginning of June and the beginning of August. These may be plunged in a sheltered spot out of doors; and, with attention to watering, thinning, and tying up, as previously directed, they will come into bloom respectively about the middle of August and the end of October. The latter of these sowings must be removed to a frame as soon as danger from frosts may be apprehended.

The next sowing, which is to provide plants for blooming through the winter months, must be made about the middle of September. A little more attention is necessary at this season of the year, in order to prevent them from damping off, and also to secure as much of the sun's rays as possible. The soil I would recommend for this sowing consists of three parts of loam, one part of good manure in a state of powder, and one part of leaf-mould. My reason for using more loam at this season is because the compost then retains moisture longer than if a less proportion were employed; and thus the necessity of frequent applications of water is in great measure done away. In dull weather *Mignonette* is very impatient of water; and when it is applied, it should be done in the morning, in order that the foliage may become dry before night. For this sowing I would use 48-sized pots, giving them a good drainage,

In preparing the frame for their reception, it should be raised behind, so as to give it a good inclination towards the south, for the purpose of gaining the full benefit of the sun, and also of preventing drips, which are very injurious, as the plants seldom recover from checks occasioned by their becoming very wet. The bottom of the frame should be covered with brick rubbish, and over this there should be a stratum of rough coal-ashes, and again, on the top, six inches of finely-sifted ashes. This must be arranged so that, when the pots are plunged, they may not be more than nine inches from the glass. When the seeds are vegetated, give as much air as possible; and by attention the plants will begin to flower about the beginning of December, and keep in good condition for three months.

The final sowing should be made about the beginning of October, using the same sort of soil and pots, preparing the frame in the same manner as directed for the preceding, and taking great care in the watering and thinning. By the beginning of March the plants will commence flowering.

When frost sets in, cover the glass with mats and loose hay, taking them off on every favourable opportunity, as the young plants, when excluded too long a time from the light, will turn yellow, and damp off. I would also lay some long litter around the frame, to prevent the frost from penetrating through the sides.

It may be well to mention that in thinning, the plants ought to be left as nearly of an equal size as possible in each pot, retaining

the largest in some, and the smallest in others. This will give a longer succession of bloom; and, if at any time one sowing is likely to be over before the next is ready, pinch out the tops of a few of them when they are beginning to flower: this will cause them to break out again, and bloom three weeks or a month later than the others of the same sowing.

The cultivation of Mignonette in boxes differs so little from that in pots, and boxes being seldom used, except to stand in particular situations out of doors, it is unnecessary to say much on that head; but when they are used, the same sort of soil that has been recommended for summer use will suit them very well. I would, however, prefer to grow it in pots till it begins to flower, and afterwards to plant it into the boxes, where it will continue to branch out and flower for a long time. When it has done blooming, these may (if wanted) be filled again in the same manner, and thus a constant succession will be kept up.

D. D.

GLEANINGS FROM FRENCH GARDENS.



ESSRS. WARNE and Co. have just published a work, by Mr. W. Robinson, F.L.S., bearing the title given above. The author needs no introduction to our readers, for the pages of the *FLORAL WORLD* have many a time been enriched with the productions of his pen. Mr. Robinson had seen much good practice in English and Irish gardens, and had filled a responsible office in the Royal Botanic Gardens, ere he started for France to collect materials for this work. There he observed, inquired, travelled, compared, made notes, during upwards of twelve months, and now he gives us the result in as elegant and entertaining a book as one could wish for on such a subject. To say that we are delighted with it is to express ourselves very feebly. We are, in fact, not only delighted, but surprised; and doubtless many a reader of it will be surprised to find, that at a distance of but a few hours' travel from these shores, horticulture should, in many departments, present aspects so different to those we are accustomed to. Mr. Robinson's object is chiefly to direct attention to such features of French horticulture as are most worthy of adoption in British gardens. Accordingly, the subjects are selected with a view to show how our own practice may be expanded or improved; and the fruit garden claims the principal share of attention. But let no one suppose that the book is deficient of breadth; it is quite otherwise. For example, there are chapters on subtropical plants, the public gardens and parks of Paris, the decoration of apartments, the cultivation of the gladiolus, the orange, oleander, salads, asparagus, and other subjects, which the French are especially famous for; and the various methods of training espalier fruit-trees are treated of at such length, and with such delightful understandableness, that British fruits ought, in a few years' time, to be increased tenfold through the influence of this book alone. We do not agree with every word herein, but this vague qualification of our praise will be quite enough, for the simple reason that we agree with so much, and so thoroughly admire the labours of our gifted friend, that we cannot find patience to discover what there is in all the 290 pages to take exception to. The following will serve as a fair sample of the contents for such as like to taste before they buy:—

CULTURE OF THE ORANGE.—The Orange is propagated by grafting on the stock raised from seeds of *Citrus Medica* (the Common Citron), or from those raised from seeds of the Common Bitter Orange. For the trade, plants grafted on the lemon stock are the most suitable, the lemon growing more vigorously than the wild orange tree; but to secure the plant long life, the latter is the most preferable. The reason of this will be easily understood; the difference between the lemon and orange trees is much the same as between the quince and wild pear

trees : like the quince, the lemon makes all its roots at the surface of the soil, the wild orange goes deeper, and consequently the tree is better able to resist the wind and the vicissitudes of the season; naturally there is more analogy between the two woods, and the result of experiments is that the plants live much longer. An orange tree grafted on the lemon may live about a hundred years; after that time it decays and perishes. An orange grafted on its wild congener may live over three hundred years; witness the Grand Bourbon in the Orangery at Versailles, near Paris, which tree is now more than *four hundred years old, and is grafted on the Wild Orange*. Sow the seeds early in the spring in a light but not too sandy soil, and in pots (twenty-five to thirty per pot); put the pots upon a dung-bed (lukewarm), and keep the soil fresh, but do not have any steam in the frame, and to prevent this give a little air (one-half inch) to the front lights. When the seeds have come up, encourage them to grow to three or four inches high. Afterwards put them in a warmer bed, and keep a damp warm atmosphere in the frame; shade them against the burning rays of the sun; and when they are seven or eight inches high, give them a little air, increasing it as they get stronger. Let them pass through the winter in a greenhouse, where the temperature must not descend lower than 40° Fahrenheit, and in early summer put them on another hotbed in the open air plunged in leaf-mould or cocoa fibre. Leave them plunged on this hotbed through the summer, and give them plenty of water, and from time to time a little liquid manure. About the end of August in the same year graft them by the same method as that practised for roses in the winter, and put them on a hotbed, keeping as much damp vapour about them as possible. Shade them during the sunshine, cover at night and keep them close as long as the grafts are not well united together; they will be safe long before the early frost. Keep them in the frame during the winter, and the next spring divide and pot them in rich light soil mixed with a very little silver-sand to prevent the soil becoming hard; put the pots on a hotbed in a frame, and after they are rooted give them plenty of air. In the middle of June, make a hotbed in the garden, and put them on it without any covering whatever, giving plenty of water during the hot weather, and give them three or four times a little liquid manure to encourage active growth. Before the first frost they must be housed, and they will do through the winter in a greenhouse where the temperature is kept three or four degrees over the freezing point.

During the spring of the following year pot the plants afresh, and place them on a hotbed covered with a frame; keep them closed until the roots begin to shoot, and give air successively; shade the frame against the burning rays of the sun, and when frosts are no longer to be feared, take the lights off entirely. When they have done their growth, and the wood is sufficiently ripened, pot them afresh, and leave them in a greenhouse for a week or two. In June make a hotbed in the open air, covered five or six inches with dung-mould or cocoa refuse, and put them in it. This is the last season during which the oranges need be grown upon a hot dung-bed. The greatest obstacle to the well-growing of the orange in England is the persistence of the gardeners and nurserymen in treating it as a greenhouse plant. I do not mean to say the orange should be left like our common shrubs, but it is possible, with very little care, to grow them in England almost as well as in northern France. Many writers on this subject give the south exposure as the best for an orangery, and therein is the mistake. To insure the success of oranges grown in boxes or in pots, *they must not in any cases be allowed to grow in the houses*; all their growth must be made out of doors; and it is a matter of fact, that if the orangery is to the south, no matter what the trouble you take to prevent their starting, the plants will be beginning to shoot a long time before the weather is mild enough to permit of their being placed in the garden.

A good orangery should have a northern exposure, with plenty of windows to admit the light, and every convenience to give full air when it is not frosty. It will be very easy to heat the orangery in such a position, as the temperature required is only two or three degrees over the freezing point. It must be remembered that oranges are grown out of doors all the year round in parts of France and Spain where it freezes every winter. If the plants, after all the care taken to prevent their growth in the houses, begin to vegetate, and if the young shoots are more than an inch in length, it would be far preferable to cut them back than to let them retain a growth which is sure to be disfigured and spoiled in the open air. The watering of the oranges must be very carefully done, as too much water

would be more pernicious than too little, and especially for the large plants, where the soil is in greater quantity; one or two injudicious waterings are enough to kill the best established plants. Good drainage in the bottom of the box or pot will prevent many accidents. In the winter they want very little water. Before watering them, the grower should feel the leaves of the tree, and if flabby, as though on the point of flagging, it is then time to give them water. This applies only for the large plants, the large quantity of soil employed for them keeping its moisture for a long time. The small plants must be watered more frequently, but still with great moderation in winter. During the summer water must be given freely, but not in excess. The best time to do the watering is in the morning; and at night the plants will require a little syringing on the leaves, but only in the hottest time of the year. Liquid manure given with great moderation will do them good and quicken their vegetation. The small plants which have passed beyond the hotbed stage should be potted in a very rich light soil, and not too sandy, say nine parts of soil divided as follows:—Three of maiden loam, two and a half of yellow loam, one and a half of old dung-mould, one of peat, and one of sand. In potting plants of a larger size, the soil should be a little stronger, and be composed as follows:—Three and a half of maiden loam, three of yellow loam, one of thoroughly rotten dung, a quarter of peat, and one part of sand.

OLEANDER CULTURE.—Visitors to the Continent in the summer months can hardly fail to be struck with the employment of certain plants for decorative purposes, of which we in this country make comparatively little use. Here, if a few orange trees or Portugal laurels, perchance a pomegranate, are grown in tubs and put on to the terrace in summer time, it seems to be considered that enough has been done in that way. There is no reason, however, why many other plants should not be used in like manner. We well remember the beautiful effect produced on a quay fronting the Lake of Lucerne by a number of standards of this kind, including not only the plants mentioned, but Pittosporums, Yellow Jasmines, Evergreen Oaks, Euonymus, Aucubas, and Figs. At Vienna a similar assortment may be seen in front of some of the principal cafés, where one may sit in the open street under the shadow of the pomegranate and the oleander. This latter plant, too, is an immense favourite with the Parisians. In fact, the oleander forms, with the myrtle and the pomegranate, one of the most important articles of Parisian commercial horticulture. The reasons for this are obvious—the elegant habit, glossy foliage, profusion of bright rosy or white flowers, endowed, moreover, with an agreeable almond-like perfume, offer recommendations hardly to be exceeded by those of other plants. The culture, moreover, is easy. Indifferent as to the treatment it receives in winter, it may be kept in cellars or garrets—almost anywhere, in fact; hence its frequency abroad in the windows of the artisan and at the doors of the merchant's office. The shrub may be propagated either by layers or by cuttings; but of late years, in France, the former method has been abandoned, as it is found that cuttings produce plants of better habit, and in greater numbers. It was from cuttings that those beautiful little oleanders exhibited in the reserve garden of the late Paris Exhibition, in the first fortnight of June last, by M. Chevet, were obtained.

A well-known French horticulturist, M. Chaté fils, who has had great experience in the cultivation of this plant for the last twenty-five years, has obligingly communicated to us the details of his method of cultivating this plant, which are as follows:—"If layers be required, about the end of April or beginning of May, a period when in Paris greenhouse plants are placed in the open air, some old stocks of oleander are planted out in the soil, previously trenched and well manured. At the end of a month these stocks are rooted in the soil, and then all the branches are bent down to the ground and fixed in that position with pegs. They are then covered with soil about fifteen to twenty centimetres (six to eight inches) deep, taking care to leave the extremities uncovered. The branches are copiously watered, especially when the roots begin to be formed. In the early part of August the branches are cut through, and thus separated from the parent stool without disturbing the roots. About the beginning of September the young plants are placed in pots proportioned to their size. Formerly gardeners used to layer at once into pots, thinking that by adopting the method thus described they would lose their plants. They also used to cut the branches, as they would do with pinks, at the places where they wished to secure the formation of roots. But after a time it was found

that this practice was unnecessary. It was even seen to prevent the free development of the plant, which thus became less vigorous than when layered in the soil. Although layering secures the formation of strong plants quicker than propagation by cuttings, the plants are not of such good habit, and are not multiplied so rapidly as by cuttings. These may be obtained at any season when the two principal requisites for the formation of roots—heat and moisture—can be secured; the best cuttings, nevertheless, are those raised in April, in pots or pans filled with good light soil mixed with a little peat. The cuttings should be taken with little shoots obtained from the two-year-old wood, and the whole should be placed on a brisk hotbed. Under such circumstances the cuttings will root in from fifty to sixty days. As soon as they are rooted they are exposed gradually to the air; they are repotted so that they may be placed during the summer in the open air. As soon as the plants attain a height of about twenty inches the shoots are stopped in order to induce the formation of flowering branches. To form a clean little stem, all the buds formed on the lower eight inches of its base are suppressed. The shrub especially delights in copious waterings, and should be kept perfectly free from the insect pests which infest it when under negligent cultivation."

In addition I may remark that pretty free-blooming oleanders are grown about Paris in small pots, say 48's, in sandy soil, and these pots they of course soon fill with roots. They are plunged all the summer in the open air, and grown at all other seasons near the glass in those low houses so much in vogue in Parisian nurseries and gardens. The large plants you see in some of the public gardens are in great tubs, evidently undisturbed for long periods. They flower profusely, and get about the same treatment as orange trees, as regards housing in winter. The little plants of oleander are, however, most likely to be useful with us. They are allowed to rise with an undivided stem for about four inches, and then break off into several branches. There should be no difficulty in growing them wherever there is a sunny shelf in the greenhouse, by securing a clean, while discouraging a soft or luxuriant growth, giving a rather dryish rest in winter and abundant water and light in summer. In winter any cool house will do to store them, or even a shed. The large round-headed plants in the public gardens are certainly very noble objects, and more worthy of culture than the orange tree tubs. Judging by the habit of the oleander, as generally seen with us, it might be supposed that they would not make ornamental trees for a terrace, but nothing can be finer than the immense specimens seen in the Luxembourg Gardens, the heads being as round and dense as a *Pelargonium* grown by Mr. Turner, and sometimes so much as ten feet through; and as for the little plants grown in six-inch pots, nothing can be prettier.

HORTICULTURAL AFFAIRS.

TULIPS AT KENSINGTON.—The meeting, held May 5, is deserving notice, for Mr. Charles Turner, Slough, exhibited a fine collection of Tulips, and a few good Auriculas; they were deservedly admired throughout the afternoon, thus proving that the love for first-class florist's flowers is by no means so cold as some people are inclined to believe. Of the Auriculas, Mr. Turner staged, in addition to several good old kinds, such as Richard Headly, Lancashire-Hero, Miss Giddings, and Earl Grosvenor, three new ones, all of which were awarded first-class certificates. Mrs. Mendall, a beautifully-shaped large white-edged flower; and Novelty, fine shape, deep violet shaded towards the edge; and Wonderful, rich maroon crimson, fine flower, also shaded round the margins. Of the Tulips, the following are first-rate:—Byblømens: Adonis, Duchess of Sutherland, General Barneveldt, Vicar of Radford, and Proteus. Bizarres: Caliph, Dr. Horner, Everard, George Hayward, Glory of Abingdon, Lord Raglan, Milton, Polyphemus, Sheet Anchor, Shakespeare, and Sir Joseph Paxton. The Roses were well represented by Aglaia, Countess of Blessington, Duke of Sutherland, Lady Stanley, and Sarah Headly.

THE AZALEA SHOW, HELD AT KENSINGTON on May 9, did not bring forward such good collections of these beautiful flowers as the time of year, and the vast numbers which are grown on all sides, would warrant. The best kinds shown were, Extranci, rose shaded with violet, fine; Marie Louise, purplish crimson; Victoria, white, beautifully striped with lake; Stella, bright orange-scarlet, upper segments

shaded with violet, a grand, telling flower, should be in every collection; Concinnum; Marie Vervaene, a fine white, striped with lake; Eulalie Van Geert, a fine variegated flower; Rubens, fine large flower, dark scarlet. Florist's flowers comprised Auriculas, which were shown well by Mr. James, gardener to W. F. Watson, Esq., Isleworth, considering the lateness of the season, the first prize both in the show and alpine varieties going to him. Pansies in pots were shown by several exhibitors, Mr. James again occupying the first place with fine, well-grown, and beautifully-flowered plants of Cherub, Lady Staneiz, Dr. Ingler, J. B. Downie, Baroness de Rothschild, Vesta, Rev. H. Dombrain; Messrs. Dobson and Son, Isleworth, second. Two good stands of cut flowers were shown by Mr. James, and Mr. Shenton, Biggleswade; both were awarded extra prizes, but Mr. James had decidedly the best. The principal blooms in his stand were the following, all of which are good: Beautiful Star, Lavinia, Cream of Creams, General Young, Dr. Smith, Snowball, Chancellor, Queen of Queens, Harry, John Downie, Vesta, Cherub, Masterpiece, Emily Lyle, General Early, A. Whamond, and Rev. H. Dombrain. Polyanthuses were shown by Mr. James and Mr. Wiggins, but they were rather past their best. Mr. James was also awarded extra prizes for Calceolarias and Cinerarias, and richly they deserved it, for they presented full evidences of having received the highest cultural skill. The calceolarias were beyond all praise.

Very good collections of alpine and hardy variegated plants were contributed by Mr. John Salter, Hammersmith, and Mr. Ware, Tottenham. For twelve alpines, Mr. Salter first, with *Arenaria balearica*, a pretty little species with white flowers, suitable for creeping over rocks; *Aubrietia deltoidea variegata*, *Arabis mollis*, *Saxifraga hypnoides*, *S. longifolia*, *Sempervivum arachnoideum*, *S. cornutum*, *S. Pettoni*, and *Sedum glaucum*. Mr. Ware second, with a scarcely inferior lot. Two good collections of hardy ornamental-leaved plants came from the same exhibitors. Mr. Salter had *Beta chitiensis*, with fine, clear, highly-coloured leaf-stalks; *Funkia alba marginatum*, *F. undulata*, *Arundo colorata*, *Trifolium repens*, the variegated Lily of the Valley, *Sedum Sieboldi*, and *S. fibarium variegatum*. Mr. Ware also had some choice things amongst his twelve, and also a good collection of spring-flowering plants.

THE ROYAL AGRICULTURAL SOCIETY'S great meeting in 1869 is fixed to take place in Manchester.

FOURCROYA LONGÆVA, a scarce and noble member of the Amaryllidaceæ, is now in flower at the Regent's Park Botanic Gardens. In 1863 a plant of this species flowered in the garden of M. Louis de Smet, at Ghent, and an account of it was published in the *Gardener's Magazine* of October 31, 1863.

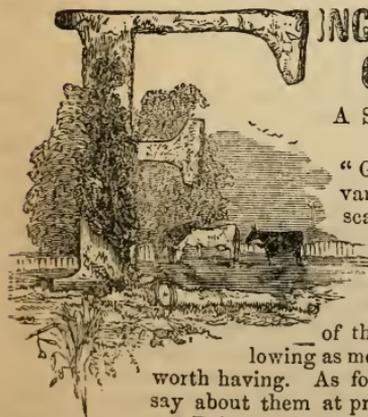
THE NATIONAL HORTICULTURAL EXHIBITION was opened in the Manchester Botanical Gardens on the 29th of last month, and will continue until the 5th of June. It is one of the most attractive and important exhibitions of the kind ever held out of the metropolis. In all the leading classes entries are plentiful; there are upwards of 300 entries in all, and they include a considerable number of the foremost exhibitors in the country. In one or two classes this surpasses the International Exhibition of 1866.

CRYSTAL PALACE FLOWER SHOW.—This exhibition was held on Saturday, May 23, and was one of the best and most attractive features of the whole season. That the liberality of the directors in providing this treat for their patrons was fully appreciated, there can be no doubt. When the barriers were thrown open to admit the public into the enclosure in which the plants were placed, they were so densely crowded up to the removal of the plants, that it was a most difficult matter to get near them. Azaleas were shown in grand condition. The best collections were in most instances made up of huge plants trained cone shape, and a mass of flower with a few green leaves peeping out here and there amongst them, giving the plants a most charming appearance. The principal kinds shown upon this occasion were the following, and we need scarcely say that they are the best in the respective colours which they represent. Our readers, therefore, when making up collections, can add any of these to their list with advantage: Alba lutescens, white, striped red; Optima, dark scarlet; Ivoryana, pure white striped rose, fine; Distinction, salmon, margined with white; Coronata, Magnet, bright rosy salmon, fine; Napoleon III., dark rose, fine large flowers; Murrayana, bright rose; Criterion, salmon pink, margined with white, and spotted with red on upper segments;

Stanleyana, rosy scarlet, fine; Model, bright rose, fine; Glory of Sunninghill, rich pink flowers, large, a beautiful kind; Juliana, deep rich crimson, fine; Barclayana, pure white, striped and flaked with rose; and many others, but this selection comprises the most distinct. Messrs. Glendinning and Sons, Chiswick, Mr. Carson, Cheam, and Mr. Penny, gardener to H. H. Gibbs, Esq., were first in the respective classes. Exotic orchids were plentifully shown, and in beautiful condition. Mr. Penny; Mr. Gedney, gardener to Rev. W. Ellis, Hoddesdon; Mr. Wilson, gardener to W. Marshall, Esq., Enfield; Mr. Young, gardener to W. H. Stone, Esq., Havant; Mr. B. S. Williams, and Mr. Bull, Chelsea, were the principal exhibitors. It would take up too much space to enumerate all deserving notice, therefore we will name a few of the very best only:—*Cattleya Mossiæ*, *C. citrina*, *C. superba*, *Dendrobium densiflorum album*, *D. nobile*, *D. Wallichianum*, *D. tortile*, *Cypripedium villosum*, *C. barbatum nigrum*, *C. Lowii*, *Odontoglossum citrosum roseum*, *O. nævium majus*, *O. lutea purpurea*, *O. Pescatorci*, *Vanda sauvis*, *V. tricolor*, *V. teres*, *Aerides Fieldingii*, *A. odoratum*, *A. virens*, *Oncidium sarcodes*, *O. ampliatum majus*, *O. sphacelatum*, *Saccolabium gullatum*, *Lycaste Skinnerii*, *Lælia elegans*, and *L. purpurata*.

Stove and greenhouse plants were so extensively shown that we can only name those who obtained first prizes in the respective classes. There was not a bad collection in the building. Mr. B. Peed, gardener to Mrs. Tredwell, Lower Norwood, for sixteen, the same for ten; Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, for six; and Mr. Williams, for ten in the nurserymen's class, and also for twelve flowering and foliage plants, open to all. In the various collections were fine Azaleas, Adenandras, Allamandas, Boronias, Dracophyllums, Ericas, Franciscas, Chorozemas, Stephenotis, Clerodendrons, Epacris, Pimelias, and others. Cape Heaths were contributed by Messrs. T. Jackson & Sons, Kingston. Mr. Peed and Mr. Ward occupying the first places with grand collections comprising examples of the following good kinds: *Erica depressa*, *candidissima*, *tricolor* *Wilsoni*, *perspicua nana*, *Cavendishii*, *ventricosa coccinea minor*, *ventricosa grandiflora*, *Massonii*, *odorata*, *exquisita*, *eximea superba*, *elegans*, *Beaumontia*, *tricolor Eppsi*, *florida*, and *profusa*.

There was also a fine display of roses in pots.



VINCIGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

A SELECTION OF THIS SEASON'S ROSES.

The new continental Roses described in the "Garden Oracle" for 1868 amount in all to 70 varieties. The most prodigal rose amateur would scarcely venture on the purchase of the whole of these, and it is, therefore, a consideration of some importance whether any, and how many, shall be purchased at a risk while the prices are high. Having seen the greater part of the new roses in flower, we have selected the following as most likely to reward early purchasers with flowers worth having. As for the remainder of the 70, we have nothing to say about them at present.

Reine de Portugal (Guillot fils), T. — Habit vigorous; flowers large, very full, very well formed and enduring, fine deep golden yellow; very striking, sometimes copper clouded rose.

Barillet Deschamps (Vigneron), H.P. — Habit vigorous; seedling from Comte de Bobrinsky (shades of the heroes of old!), flowers large, full, well-shaped, round, fine rose; very brilliant.

Baron Haussmann (Leveque), H.P. — Habit very vigorous; flowers large, full, well-made, poppy-red; of grand effect.

Baron Lassus de St. Genies (Granger), H.P.—Habit very vigorous; seedling of *Triomphe de l'Exposition*; flowers medium, full, lively red-crimson. (Has there not already been a rose let out of the above name?)

Baronne de Rothschild (Pernet and Co.), H.P.—Habit vigorous; seedling of *Souvenir de la Reine d'Angleterre*; flowers very large, nearly full, well formed; fine rose, deeply shaded; superb.

Charles Turner (E. Verdier), H.P.—Habit vigorous; flowers large, full, very well formed; fine lively red; very bright.

Duchesse d'Aoste (Margottin), H.P.—Habit vigorous; flowers large, full, flat; fine, bright, glossy rose.

Elie Morel (Liabaud), H.P.—Habit very vigorous, very perpetual; flowers very large, very full, lilac rose, white at the edges; very fine.

Francois Fontaine (C. Fontaine), H.P.—Habit vigorous, wood and foliage admirable, flower about four inches in diameter, rich, deep, purple-red, very fiery; form very perfect; opening well, and blooming freely and continuously. A silver medal at the Exposition at Versailles, May, 1867.

Madame Gonod (Moreau), H.P.—Habit very vigorous; flowers medium, fine clear satin rose; reverse of petals nearly white.

Madame Noman (Guillot père), H.P.—Habit vigorous; flowers medium, full, well-shaped, pure white.

Madame Rolland (Moreau), H.P.—Habit vigorous; very perpetual, and full of flowers; flowers the form of *Baronne Prevost*, of which variety it is a seedling; superb rosy flesh, very distinct, and resembling at a distance *Souvenir de la Malmaison*.

Marie Cirotte (C. Verdier), H.P.—Habit very vigorous; seedling of *Triomphe de l'Exposition*; flowers large, full, well imbricated; fine fresh rose; magnificent variety.

Pirolé (Lacharme), H.P.—Habit vigorous; flowers large, full, well-shaped fiery red, centre pansy-velvet; very fine.

President Villermoz (Ducher), H.P.—Habit very vigorous; flowers very large, full, well-formed; clear clouded rose; superb.

Prince Humbert (Margottin), H.P.—Habit very vigorous; flowers very large, full, well-shaped, velvety violet-red; very bright.

Souvenir de Francois Ponsard (Touvais or Liabaud), H.P.—Habit very vigorous, and flowering continual; flowers large, globular, full, well made; petals large; fine lively rose; very fragrant.

Vicomtesse de Vezins (Gautreau), H.P.—Habit vigorous; seedling from *Triomphe de l'Exposition*; flowers very large, very full, like a rosette in centre; fine, fresh, bright rose; superb; second prize at "l'Exposition Universelle."

NEW PLANTS.



COTYLEDON VELUTINA, *Velvety-leaved Cotyledon* (*Bot. Mag.*, t. 5684).

—Crassulaceæ. A handsome South African plant, introduced by Mr. Saunders, of Reigate, through his collector, Mr. Cooper. It is a stout succulent plant, two to three feet high, with rather glaucous stem and dark green foliage. The panicle is flat-headed, bearing a number of pendulous flowers, which are pale greenish yellow, with purplish margins. Speaking of plants of this kind, Dr. J. D. Hooker says, "Amongst the species are some with the most beautifully coloured foliage, and others with very handsome flowers, which, together with the facility with which they are cultivated in dwelling-houses or small greenhouses, if even of indifferent construction, render them well adapted for supplying the horticultural requirements of the less wealthy and even the poorer classes who inhabit the outskirts of our great towns. A distribution of such succulent plants as these, would give far more enduring pleasure to the poorer classes, than the geraniums and verbenas of the parks, given away at the end of the season, when it is almost impossible to keep them alive without heat and glass, and quite impossible to flower them."

COBURGIA TRICHROMA, *Tri-coloured Coburgia* (*Bot. Mag.*, t. 5686).—Amaryllidaceæ. A magnificent plant, from the Andes of Peru, long known, but lately admirably flowered in the garden of Mr. Wilson Saunders. In general characters it agrees nearly with others of the genus. The flowers, however, are peculiarly



COTYLEDON VELUTINA.



COBURGIA TRICHROMA.

attractive, the tube being deep red, terminating in a broad stripe of dove colour on each segment, the interior of the flower being pale pink.

IPSEA SPECIOSA, *Beautiful Ipsea* (*Bot. Mag.*, t. 5701).—Orchidaceæ. A beautiful terrestrial orchid, a native of Ceylon. The rhizomes are tuberous and hard, as large as a nut or larger; leaf usually solitary from the rhizome, scape one to two flowered, flowers two and a half inches in diameter; golden yellow, with faint red lines on the disk of the lip.

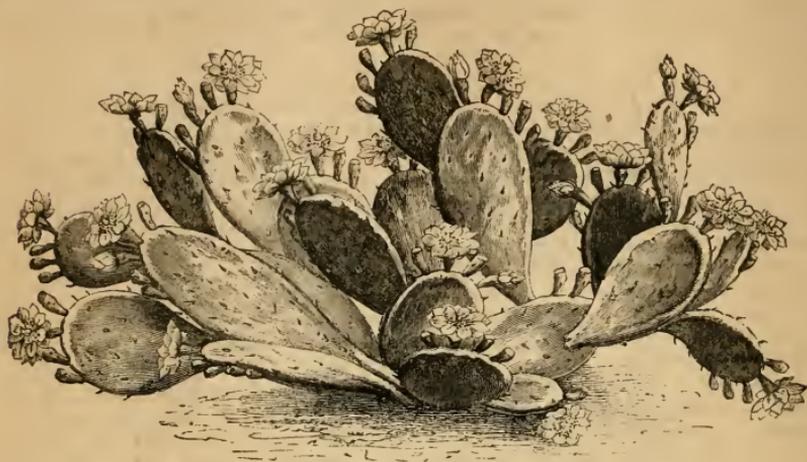
HIBISCUS MARMORATUS, *Marbled-flowered Hibiscus* (*Bot. Mag.*, t. 5702).—Malvaceæ. A fine plant, native of Mexico; it flowered in the stove at Kew in February, but is described as a greenhouse plant by Lemaire and Planchon. It is a freely-branching shrub, with bright green oblong cordate leaves and smallish flowers, which are pleasingly mottled with bright pink, and bear some resemblance to the flowers of *Abutilon striatum*.

DENDROBIUM CUMULATUM, *Clustered-flowered Dendrobe* (*Bot. Mag.*, 5703).—A pretty Moulmein species, the flowers of which are produced in subglobose corymbs at the nodes of the rachis; they are of a clear rosy lilac colour outside, whitish inside, the pedicels deep purple.

RAPHISTEMMA CILIATUM, *Ciliated Raphistemma* (*Bot. Mag.*, t. 5704).—Asclepiadæ. A pretty delicate climber, with elegant ovate cordate leaves, and corymbs of flowers of a pale greenish colour, borne on long filiform reddish pedicels.

OPUNTIA RAFINESQUIANA, *Hardy Indian Fig*.—Cactaceæ. This interesting plant is a native of the valley of the Mississippi, where it inhabits dry sunny plains. It is the hardiest known species in the whole of the cactaceous order, and admirably adapted for cultivation in English gardens, where it will withstand the severest frost. The plant forms a prostrate spreading mass of flat, thick, rounded, bat-like joints of a dark-green colour, sparingly beset with spines, and in the summer produces numerous bright yellow flowers, which are succeeded by red fleshy fruits, which are of a sweetish, tame, insipid flavour. We have to thank Messrs. Hooper, of Central Avenue, Covent Garden, for the opportunity of figuring this rare and peculiarly interesting plant. We have been supplied by them with growing specimens,

and hope in time to be enabled to form in the experimental garden at Stoke Newington an edging of cactuses, which will be at least a novel feature.



OPUNTIA RAFINESQUIANA.

TUNICA SAXIFRAGA FLORE PLENO, *Double-flowering Saxifrage Pink*.—Caryophyllaceæ. The single-flowering *Tunica saxifraga* is a native of Germany, and has been known in cultivation here for a century at least. It is one of the loveliest hardy herbaceous plants known, and has always been scarce.

This double-flowering variety is a novelty introduced here by Messrs. Hooper, of Covent Garden, by whose favour we are enabled to figure it. The plant is of light tufted habit, growing about six inches high, and forming a cushion-like mass of grassy leafage, covered from June till October with rose-coloured flowers, which are like miniature carnations. There



TUNICA SAXIFRAGA FLORE PLENO.

has been nothing of its class introduced of late years more worthy the attention of the amateur of hardy plants than this, as it is not only unique in its beauty, but will thrive in any light sandy soil, if fully exposed to sunshine.

ACROCOMIA SCLEROCARPA (*L'Illustr. Hort.*, t. 547).—Phœnicaceæ. A fine Brazilian palm of large growth. The tall stem crowned with plume-like fronds; the fruits are hard globular nuts.

CIBOTIUM REGALE, the *Royal Cibotium* (*L'Illustr. Hort.*, t. 548).—A fine figure of this well-known magnificent tree fern.

CALCEOLARIA PISACOMENSIS (*L'Illustr. Hort.*, t. 549).—A good figure of a showy species.

CLARY WINE.—In the May number is a description of clary. The blossoms of this plant make a very delicious wine, sparkling, and the flavour of the Frontigan grape. The flowers require to be picked every day and dried.—*Subscriber*.

TO CORRESPONDENTS.

ROCK PLANTS.—*R. Massie, Wrexham*.—The following selection of plants, suitable for this purpose, comprise the best kinds at present in cultivation. *Achillea Clavenna*, silvery foliage, yellow flowers, and requires a dry, sunny position. *Ethionema saxatile*, pretty pink flowers. *Alchemilla alpina*. *Alyssum saxatile compactum*, a fine dwarf variety of the species, with immense heads of golden yellow flowers; *A. saxatile variegatum*. *Andromeda hypnoides*, a charming little plant from Norway and Lapland, white, bell-shaped flowers. *Androsace carnea*, pink or bright rose-coloured flowers, a perfect gem; *A. ciliata*, beautiful crimson flowers; *A. lactea*, white flowers in the way of *A. coronopifolia*, but much larger. *Antennaria hyperborea*, silvery foliage. *Aquilegia alpina*, large, purplish blue flowers. *Arabis albida*, *A. alpina*, and *A. lucida variegata*. *Arenaria balearica*, a pretty little dwarf-growing plant, with white flowers. *Aubrietia deltoidea grandiflora*, bluish lilac; *A. Campbelli*, violet blue, fine. *Campanula garganica*, fine bluish purple flowers. *Cerastium Biebersteini*, *C. tomentosum*, dwarf trailing plants, with silvery foliage and pretty white flowers. *Cheiranthus alpinus*, bright yellow; *C. Marshalli*, orange, dwarf-growing plants. *Cistus Algarvensis*, yellow; *C. ledon*, yellow; *C. roseus*, rose. *Convolvulus Mauritanicus*, blue, pretty trailing plant. *Crocus sativus*, an autumn and winter flowering species, with pale blue flowers. *Cyclamen coum*, deep red; *C. coum europæum*, rosy pink; *C. hederifolium*, pink; *C. hederifolium album*, white. *Daphne striata*, pink. *Dianthus alpinus*, large, deep rose-coloured flowers. *Draba aizoides*, bright yellow. *Dryas Drummondii*, pale yellow. *Erinus alpinus roseus*, bright rosy pink. *Fragaria alpina flore plena*, *F. vescafoliis variegata*. *Gentiana acaulis*, blue; *G. ciliata*, rather a new species from Switzerland, with azure blue flowers; *G. herna*, blue. *Glechoma hederacea variegata*. *Iberis saxatilis*, white; *I. sempervirens*, white; *I. Tenoreana*, white. *Linaria alpina*, violet; *L. cymbalaria variegata*. *Lychnis viscaria splendens*, bright pink. *Lotus corniculatus flore plena*, yellow. *Mimulus cupreus*, orange or scarlet; *M. Moschatus* (musk). *Myosotis Azoricus*, rich purplish blue; *M. montana*, deep blue. The *Mimulus* and *Myosotis* must be grown where they can have plenty of moisture at the roots. *Orobis vernus*, purple. *Oxytropis uralensis*, purple flowers and silvery foliage. *Phlox Nelsoni*, pure white. *Phyteuma hæmisphæricum*, blue; *P. humile*, dwarf-growing blue. *Polygala chamæbuzus*, bright yellow, fragrant. *Saponaria cæspitosa*, rose. *Saussurea alpina*, foliage silvery white beneath. *Saxifraga affinis*, white; *S. aizoides*, yellow; *S. biflora*, rosy purple; *S. caryophylla*, large white flowers, distinct; *S. cotyledon*, *S. pyramidalis*, white, with purple centre; *S. cymbalaria*, pale yellow, spotted with orange; *S. granulata*, white; *S. hirculus major*, yellow, spotted with orange, very distinct; *S. juniperina*, yellow, flowering in dense clusters; *S. japonica variegata*, *S. oppositifolia*, purplish rose; *S. oppositifolia alba*, white; *S. oppositifolia splendens*, bright crimson; *S. pectinata*, compact, silvery-edged foliage. *Sedum acre aureum*, yellow; *S. album*, white; *S. anglicum*, white and red; *S. cyaneum*, yellow; *S. purpureum*, rose; *S. pallidum roseum*, rosy pink; *S. Sieboldi*, blue. *Sempervivum barbatum*, *S. globiferum*, and *S. montanum*. *Silene acaulis*, rose; *S. acaulis alba*, white. *Vinca major*, blue; *V. major variegata elegantissima*, *V. minor*, blue; *V. minor alba*, white; *V. rosea plena*, purple. The *Vincas* are very valuable for growing in shady places. You can depend upon getting the above-mentioned plants at Messrs. Backhouse and Son, York, and Messrs. E. G. Henderson and Sons, Wellington Road, St. John's Wood; both firms have grand collections of these beautiful flowering plants. Taking into consideration the extreme beauty of these plants, and the ease with which they are grown, we are always surprised that they are not sought after more than they are; in point of real beauty many of the plants named in the foregoing list are unrivalled.

ALOYSIA CITRIODORA.—*C. H.*—We are surprised that you have had so much difficulty in propagating this fragrant plant, for it is one of the easiest plants to propagate and grow that we have in cultivation. You must try again, and we will help you with a little advice. Take cuttings at once from the young growths made this spring, and we might say treat in the usual manner; but as you have been so unsuccessful we will give you full details. Before taking off the cuttings prepare some pots for receiving them, by filling them one-third full of broken

crocks, then the remaining space with light sandy soil, such as a mixture of loam, leaf-mould, and sand, to within an inch of the rim, which must be partly filled with silver sand. As before observed, take the tops of the young growths, and cut them in about three-inch lengths; they should have properly three joints, and have the bottom pair of leaves removed and be cut clean under the bottom one. These cuttings must be dibbled over the surface of the soil an inch apart, and be pressed firmly in their places. When the whole of the cuttings are inserted, water them with a fine rose, and place the pots in a rather close and shaded part of the greenhouse. No bottom-heat or propagating beds are necessary now. The main object is to keep the foliage fresh. A shade, frequent sprinkling, and a rather close atmosphere will suffice for this. Directly the cuttings are rooted, pot off into three-inch pots, and use a compost prepared as near as possible in this way—loam from the top spit of an old pasture two parts, and decayed manure and leaf-mould in equal quantities, to form the third part, with a liberal admixture of sharp sand; good river sand will answer admirably. The young plants will require to be kept close for a few days to get established. When the roots are forming nicely round the sides of the pot, you must determine what you intend doing with them; that is, whether you intend growing them planted out or in pots. We should advise you to grow a few both ways, as you are so fond of cutting the sprigs for vases and bouquets, and then you have no necessity to cut your pot plants about. The subject of out-door culture can be dismissed in a very few words. Choose an open moderately rich border, and plant them out in exactly the same way as a common scarlet geranium. The plants make finer and healthier growths if the border is ordinarily moist, and not overshadowed with trees. The after treatment of the pot plants is so excessively simple, that we often wonder that we do not see better grown specimens than those which we ordinarily meet with. You have nothing to do beyond stopping the main shoot when it gets four or five inches from the pot, and then stopping the side shoots in the same manner, to make the plant a good shape. Pyramids eighteen inches high have a charming effect, and make fine window plants.

CINERARIAS DONE FLOWERING.—*Miss R.*—The plants which you are desirous of preserving should have the flower-stalks removed at once, and the plants turned out of the pots and planted in a border of light rich soil, where they will be partially shaded from the sun; for this purpose no place is better than a border under a north wall. We give the border, when we turn our plants out, a dressing of six inches of either rotten dung or leaf-mould, or equal proportions of the two, whichever we happen to be able to spare, and a couple of inches of river sand; or failing that, an equal proportion of road scrapings. This compost is mixed with the ordinary soil about a foot deep. The balls of soil are slightly loosened and the crocks taken away, and the plants are planted eighteen inches apart, and the bed kept free from weeds. Any one who has not seen plants treated this way would scarcely believe the fine offsets which are produced by the end of August. It is, without doubt, a much better way than keeping the old plants in pots all the summer, for you get offsets twice the size and with but little trouble. All amateurs ought to adopt it, for it saves them much time and labour, and there is no fear of the plants suffering for want of water through the hot months. The plants should be carefully lifted early in September, the offsets taken off and potted in five-inch pots, and placed in a cold frame, upon a moist bottom of coal ashes, where they will take root in a surprisingly short space of time. Offsets have several advantages over seedlings, for they are dwarfer in habit and flower more abundantly, and the cultivator knows exactly what he is growing, which is not the case with seedlings, for with the most carefully selected seed a large quantity of flowers will be coarse and rough, though passable as regards colour.

MILDEW IN ORCHARD HOUSE.—*Ignoramus.*—The leaves sent are covered with mildew. We are unable to state the exact cause of its presence, for a damp stagnant atmosphere, too dry, or too wet at the roots will produce it. We have often seen it upon trees grown in houses erected upon the orchard house plan, with large squares of glass, after cold easterly winds in March and April, when the trees have been started early enough to get the foliage full out by that time. Your remedy is to dust every particle of foliage and fruit with flowers of sulphur, after the trees have been sprinkled with water to help it to adhere. The heating apparatus, if your house is heated, should be painted with sulphur made to the consistency

of paint, when the pipes are not excessively hot, which is hardly likely to be the case at this time of the year. To enhance the efficacy of the sulphur, keep the house shut up as long as you can before giving air for a couple of mornings after the trees are dressed, by this means the fumes will rise very strong and have double effect; perhaps, by way of caution, we had better observe that the air-giving must not be deferred until the foliage is injured. We have never found any difficulty in dispersing mildew with the aid of good sulphur. These remarks will apply to the case of *X.Y.Z.*, *Poma*, *W.H.T.M.*, and others whose trees are covered with mildew; and unless the sulphur is applied promptly, the crops will be ruined for this year. The fruit will become hidebound, and split in all directions when it begins to swell out after stoning, and consequently be rendered unfit for table or anything else.

GREENHOUSE LYCOPODIUMS OR SELAGINELLAS.—*A Lady Amateur.*—The following selection will do admirably for growing in your conservatory. People very often fail in growing these beautiful and easily-managed plants, through exposing them to the same amount of air and light as the hard-wooded plants. The delicate foliage will not stand rough treatment with impunity, for it soon assumes a brown rusty colour, to prove to the cultivator that the plant is not receiving the right kind of treatment. These plants are propagated by cuttings and division, and thrive best in pans about six inches deep, well drained and filled with a mixture of fibry peat, loam, and leaf-mould in equal proportions, with plenty of sand. There are many more splendid kinds, but these are the most suitable for the conservatory. *Selaginella apoda*, a pretty little dense-growing kind, requires care in watering, otherwise it will go mouldy in the centre. *S. denticulata*, the old common kind, but very beautiful and free growing, one of the most useful we have. *S. formosum*, a fine kind, the habit close and massive-looking, very easy to propagate, and grows about a foot high. *S. Martensii*, a fine erect close habit, same height as the preceding. *S. cuspidata*, a very beautiful growing kind, foliage forms quite a bird's nest; and *S. Wildenowii*, a fine spreading kind.

PRIMULAS AFTER FLOWERING.—*E.A.H.*—It is a most difficult matter to preserve single primulas through the summer, for even if they are kept alive, it is a hundred chances to one that they go off in the winter when they are in flower. When extra large plants are required for blooming early in autumn, it is a capital plan to sow the seed late in the summer, and keep the plants in rather small pots through the first winter and following spring; and then if they are potted on through the summer, and grown in a cool and rather shady position, they make grand plants for November, December, and January. As you have flowered your plants in the ordinary way, the best course for you now to pursue will be to toss them away at once, and get up a fresh stock from seed, as you have hitherto done. Keeping the old plants will give you a deal of trouble, and then probably the whole affair will end in disappointment.

THE NAMES OF PLANTS, AN OLD DIFFICULTY.—I have done a good deal towards recommending the **FLORAL WORLD** to my friends, but I am often told it is too learned for ladies. They are not well up in the botanical names of plants, and are often disappointed when they order some, what they think, new seeds, and find they are what they have had in their gardens for years. Could you not give the common name with the botanical? I only suggest this change as a means to increase the circulation of such a useful little book. I read the **FLORAL WORLD** each month, as it is sent to my husband for review. Wishing you every success.—*J. O'D.* [If we were to say that we have had hundreds of letters on this subject, the writers having in view the same object as *J. O'D.*, we should scarcely exaggerate the fact. Usually the complainants are ladies, and always, we trust, our replies have been polite, though they may have appeared otherwise, as we fear will be the case now. In the first place, then, we have to say that the complaint has no foundation in fact. Now, for example, take any number of the **FLORAL WORLD**, and every plant referred to or described has both its English and its Latin name, if it can boast of both; but if it never had an English name, it follows that the Latin must be sufficient. More than this, we have adopted freely names not generally recognized, and have sometimes invented names expressly for the benefit of those lovers of plants who think they must suffer dislocation of their maxillaries (*Anglice, jaw-bones*) if they “allium call their onions and their leeks.” For example, when speaking of *Tritoma uvaria*, a name which we suppose easy enough to pronounce and re-

member, we have attached a homely name of our own coining, and called it also the "Red-hot poker plant." So, again, as an aid to the unscientific memory, we have described *Cineraria maritima* as the "Silver frosted plant," the *Lonicera brachypoda* as the "Japanese honeysuckle," and *Achillea millefolia rosea* as the "Rosy Yarrow," etc., etc. Surely the FLORAL WORLD is, least of all horticultural publications, open to the accusation of needless pedantry. But in the next place the complaint is bad in principle, for these two good reasons: first, that English names are variable, and many of them of purely local use and meaning, whereas properly recognized botanical names are not variable, they are integral parts of the language of science, traceable to authority and definable according to law. For example, suppose we gather together seven persons from seven different counties, all of them interested in plants, but all ignorant of botany, and ask each to give the name of a flower which the botanist has labelled *Viola tricolor*. Amongst these persons it will be known respectively by such names as Paunse, Pansy, Heart's-ease, Herb-trinity, Love-in-idleness, Kit run-about, and Three faces under a hood. Now if we are content usually to speak of this plant as THE PANSY we consider we have done enough to make our pages useful to the majority of our readers, and if some of them fail to apprehend what is meant through never having heard the word Pansy before, the fault is not ours but theirs, because it is a word in common use and to be found in every dictionary. We can, however, quite understand our correspondent's remark that our friends are often disappointed when they order something they think new, and it proves to be identical with something they have had in their gardens for years, for that happens to ourselves occasionally, sometimes through misapprehension either on our part or the part of others, sometimes simply as the result of a dishonest system of trading, the puffing under a new name and as new of a plant as old as English gardening. As arguments of this sort should be illustrated by example, we will take the case of the mountain violet or *Viola lutea* of botanists. A few years ago it was advertised as the "new golden bedding violet," and the name of a practical horticulturist was attached to the puff as a guarantee of the newness and beauty of the plant. We bought a lot of it on the faith of that man's name, and very soon found we had obtained a supply in a rather poor state of a plant which we had possessed at least twenty years, and could have found tufts a yard square to cut up for bedding purposes had we required them. Now, all who know the FLORAL WORLD, will acknowledge that it never recommends new plants of doubtful value, that it gives no encouragement at all to trade trickeries; but they may not also be aware that because of its anxiety for the interests of its readers, the trade has never liked it, and have scarcely at all patronized it as an advertising medium. Not that that matters, the sale is such that we can do without the trade, and we should not turn aside from our course if they were to alter their minds and rush upon us with favours. A journal depending on advertisements dare not publish such papers as those on "Rough and Ready Gardening," for they are intended to save our readers' purses, not to promote extravagance, and in like manner we please very few by giving the common English names of plants at every opportunity, that our readers may have every possible advantage of understanding what our botanical names mean. But we repeat that in principle the complaint has but slender foundations, for English names of plants are variable, more or less local, and generally undefinable, whereas the Latin names are fixed in the language of science, and cannot be influenced by custom or fashion. As a final illustration, we ask *what is the SHUTTLECOCK FERN?*

P. B.—The best vermin-killer we know of to keep roses clean is the "Aphis Wash," manufactured by the City Soap Company, Milton Street, London, E.C. The vermin-killer we commonly recommend is pure water applied with some force by means of a garden-engine.

M. O. X.—Your house will make a fernery admirably. If we had to convert it to this purpose, we should quite fill it with rock-work intersected by irregular walks. Some taste would be required, of course, but that you must find for yourself. To carry out the scheme according to our idea of the capabilities of the place would be an expensive matter; but you will find no difficulty in constructing banks and beds of peat, and filling these with such hardy ferns as have been recommended in the FLORAL WORLD, GARDEN ORACLE, and other of our works.



AURICULA.

See 'The Garden'.

THE FLORAL WORLD

AND

GARDEN GUIDE.

JULY, 1868.

NOTES ON AURICULAS.

BY JOHN WALSH.



IN the years 1866 and 1867 I contributed to the FLORAL WORLD some practical papers on this my favourite flower, and at the solicitation of the Editor, with whom the Auricula is an especial favourite, I now offer a few rough notes for the benefit of amateurs who are purchasing stock, and for all who are not yet fully versed in the large and attractive subject of auricula cultivation.

The months of July and August are the best in the whole year for the purchase of plants, as the recently potted offsets will be strong, and, of course, may be obtained cheaper than large flowering plants. There is but one good way of purchasing, and that is to see the plants first. They ought to be established in small pots, with a tuft of nice healthy leaves, and not an aphid alive upon them. Young plants are not, generally speaking, in a very promising state this year, owing to the excessive heat, combined with a dry air, to which they have been subjected. I have lately inspected the fine collection at Slough, and am happy to say that our excellent friend Mr. C. Turner has had his usual good luck, and has come through the trial well, his stock being particularly clean and healthy. Those who cannot see the plants before purchasing must depend upon the dealer, and hope for the best. In the FLORAL WORLD of April, 1867, I gave a selection of the best varieties, which I confess I cannot improve, for it includes everything desirable except the very newest and most expensive kinds. I leave the reader to select, therefore, from that or the "Garden Oracle," as they are both safe guides. No matter where or how the plants are obtained, they will probably be in a somewhat starved condition, and it will be well to give them a shift as soon as received, and place them in a shady spot out of doors. In the paper just referred to I have recommended a sound turfy loam, with a moderate allowance of sand, as preferable to rich and stimulating mixtures, and this advice applies especially to the use of plants newly purchased. Care must be

taken not to overpot them; as a rule, a 60-sized pot is plenty large enough for the strongest yearling plant, but good examples of strong-growing varieties may be allowed 54's, a very useful size for them to flower in the next season.

This is a good time, also, to sow auricula seeds. Nay, it is the best time, for if properly sown and properly kept, a very large proportion of them will sprout next spring, and some few may start in the coming autumn. It is not generally known that seed of show auriculas will remain dormant for twelve months, or even for two years, and at last every seed will sprout. I once tried to count the seed before I sowed it, and the plants that ultimately grew in the pan. I failed in both attempts; my patience was unequal to the task; but I felt sure that very few out of a thousand perished, and I allowed eighteen months from the time of sowing ere I ceased to expect any more seedling plants. No place is so good for the seed-pans as a cold frame, because of the protection afforded against vermin and accidents; but the best pans of seedlings I have ever had were in pans that stood on a wall, exposed to all weathers, and that were actually not touched from the day I sowed the seeds, some time in July, until the day I took the pan down in order to prick out some of the most thriving plants, some time in the month of May following. But then I have not been always so fortunate. I have, after sharp winter weather, found these seed-pans well scratched, as if a robin had searched in them for a worm—or it might be a playful pussy. At other times an officious gardener has taken the pans off the wall, and thrown out what he called the "stale mould," in order to sow seeds of stocks, or something else of the kind. The sort of pang experienced when such an event occurs is too awful to be dwelt upon, but I hint at the risks the "best" mode is subject to as a warning. If I could be sure of safety, I would now sow my seeds in a silky yellow loam, and cover them nearly a quarter of an inch deep, and place the pans on a wall, or on any other hard surface, fully exposed to all weathers, and leave them wholly to the care of nature. But as there is no certainty of safety, the cold frame is to be preferred, and the soil should be kept constantly moist and shaded until the plants appear.

The bloom in 1868 was generally good, but unusually early. I have no reason to complain, especially as I had beautiful trusses on several sorts that are usually fitful in temper and difficult to manage. I was particularly pleased with *Lightbody's Sir John Moore*, this season, and because of its fine quality I selected it for the figure which accompanies this article. This is a bold green-edged flower, of a pleasing appearance. When at its best with me, this season, its form was quite equal to the drawing here given, and the colours were laid on with the most delightful regularity. This flower has a pure, solid paste, and a large clear yellow thrum. It usually produces a large truss, and is rather early in attaining full development. Other fine varieties of the green-edged class are *Dickson's Duke of Wellington*, a very pure and striking flower; *Smith's Lycurgus*, one of the grandest of the class. *Campbell's Admiral Napier* and *Traill's General Havelock* are also desirable. In the grey-edged

class I have had good luck with *Turner's Ensign*, which is certainly one of the best grey-edged flowers of all the batch of new ones. *Read's Miss Giddings* has delighted me, the pips open so flat, in such large trusses, and the colours are remarkable for strength and regularity. *Cheetham's Lancashire Hero* is another of my favourites. Add *Chapman's Sophia* and *Maclean's Unique*, and you have the pink and prime of the novelties in this class. As for white-edged flowers, I have had many newish ones in the class in flower this season, but they did not bloom so well as others, and none of the white-edged, whether new or old, were so white as I have seen them. Many, indeed, were too decidedly grey to be called white, if we had never seen them before. But I have been well satisfied with *Lightbody's Fair Maid*, the counterpart in colouring of my *Miller of the Dee*, also with *Smith's Ne Plus Ultra*, *Fletcher's Mary Ann*, *Smith's Lady Sale*, *Gairns's Model*, a charming form. The only novelty amongst selfs that I have had flower well was *Smith's Formosa*, a very faulty but most lovely flower, the body colour of which is a light lively mauve. I would not be without it on any account, for if it only secures the admiration of the ladies—as it never fails to do—that is enough to warrant keeping it. *Chapman's Squire Smith*, *Martin's Mrs. Sturrock*, *Martin's Eclipse*, and *Lightbody's Meteor Flag*, are grand things in this class, and I suppose we shall have a chance of buying some of Mr. Turner's new selfs in 1869.

I hope some day our Editor will put the classification of auriculas to rights in the same business-like and useful way he has classified the geraniums. There is no proper distinction between a white and a grey-edged auricula, and the most experienced cultivators will often differ about the class to which a new variety should be assigned. Almost all florists' flowers have been classified objectionably; in fact, the classification is the fruit of empiricism and arbitrary dictation, not of reason and observation. There is abundant work in this field for those who are equal to it.

SHOW AND FANCY PELARGONIUMS.

BY AN EXHIBITOR.



E hear and read so much about the various classes of zonal and variegated Pelargoniums, that one might for the moment suppose that the sections of show and fancy pelargoniums were well-nigh forgotten, and fast going out of fashion. But it is not so; they are grown and cared for as much as ever, and can be seen everywhere in as high a state of perfection as they ever were, and it is in but few places that they have been entirely thrust out by those belonging to the other sections; and where this has happened we have invariably found the proprietor to be "zonal mad," and unable to see any beauty in anything else. Well, we will leave them to their fancies, and by giving a few hints upon the management, aid in extending

their culture; or if we fail in that, we shall at least help a few hundreds out of the many thousands that read the *FLORAL WORLD* to grow them better than they have hitherto done. I will not occupy a single line in speaking of the comparative value of the various sections of this great family. Every one has its use without clashing or interfering with any other, therefore no good purpose could possibly be served were I to enter into a long dissertation on the failings and shortcomings of all the others, and unduly praise the two sections I have taken under my charge on the present occasion. But, before commencing the cultural part of this paper, I will just observe, that if they all bloomed at one and the same time, I should unhesitatingly give my adherence to these, and discard, with but few exceptions, all the others; but as they do not all bloom together, they are all wanted, and there is an end to it.

By way of beginning, I will say, that not in one case out of twenty do we see pelargoniums properly grown at our provincial shows; and even when we do, they very often come from people who show at our metropolitan exhibitions. I am not saying this to make it appear that the whole business of geranium-growing will come to a stand-still if my advice is not followed. I don't want to prove anything of the kind, and I am doing no more than simply recording the fact that pelargoniums are not grown by amateurs so well as they should be. This does not happen because they are not fond of them, or dead to their merits; or, on the other hand, because the plants are difficult to grow. I attribute it wholly and solely to their attempting too much, perhaps trying to grow twice the quantity of plants in a certain space than there is room for. I don't want to persuade any one to confine himself to such a few plants as to be able only to have flowers for a couple of months throughout the whole year; but I do want to induce our friends to grow no more than they can do well, for a few plants grown well must give more pleasure to the proprietor than a host of things huddled together, with no room to grow properly. I don't expect or want them to grow immense plants, from four to six feet across, such as we have been delighted with this season at our metropolitan exhibitions, by Mr. C. Turner, Mr. Fraser, Mr. Nye, and others; but I want to see nice plants, dwarf and compact, and with solid heads of bloom about a foot or eighteen inches through, instead of plants with thin, lanky shoots a couple of feet long, with a few weak flowers at the top.

By the time the *FLORAL WORLD* for July makes its appearance, the greater part of these plants will have done flowering, and the question arises, What's to be done with them? The best way, as a rule, when writing about the cultural treatment of any particular plant, is to begin at the beginning, and start with a young plant; but in this case I will take another course, and begin with the old plants after they have done their best for the season, for upon their treatment just now depends in a great measure the success which we expect hereafter. If we have no ripened wood, we shall have but few young plants, and without young plants it will be impossible for us to grow old ones.

When the flowering season is over, the plants should be removed from the conservatory or greenhouse at once. They gain nothing by remaining there but an accumulation of insects, and so much time is lost. Remember that the later the plants are kept indoors, the later will be the wood before it is sufficiently ripe for them to be cut down; and this will throw you behindhand throughout the whole affair, ending, most probably, in the spring with a crop of badly-grown plants. The specimens that have flowered should be placed in a shady position for a few days after their removal to the open air; the foot of a north wall or hedge is a capital place; if they are removed from the greenhouse direct into an open position, with a full exposure to the sun, they will be nearly scorched up, for pelargoniums are ill adapted for bearing strong sunshine after they have been indoors and shaded, for the purpose of keeping them in bloom as long as possible. My plan is to place the plants in a shady position for a week, and then expose them to the full light for a fortnight afterwards, and by that time, if they have no more water than is sufficient to keep them from flagging, they will be ready for cutting down. Water should be withheld a sufficient length of time for the soil to get quite dry by the time this is done, for it will be found that if the plants are thoroughly dry when they are pruned, and have been so a few days previous, they will not suffer from bleeding, and you can depend upon them breaking regularly; and the cuttings made from this kind of wood are less likely to damp off than green shoots full of sap.

I shall now leave the old plants, and turn to the cuttings, and we can go into the winter management when we have conducted the young plant through the first year of its existence. Supposing every cutting is wanted that can be had, the ripe shoots can be cut up into short lengths, with two eyes each—one for inserting in the soil, and the other to be just above the surface. The growing points, if they are not too soft, will make plants; but when the cuttings are plentiful, I select the stout growths that are thoroughly matured, and cut them up in lengths of about three or four inches, with a young side-shoot at the top of each length; and I find that these can be depended upon for rooting quickly, and soon making nice plants. The hollow joint should be cut close under the eye, and the bottom leaf removed; but it is best to leave all the others intact, though they generally fall off before the cuttings are ready for potting. This is of no consequence, so long as they are removed when this takes place, and not allowed to remain and lay about on the surface of the pots to rot the cuttings. As soon as the cuttings are prepared, proceed to get the pots ready, by giving them a good drainage in the bottom, and then filling up the remaining space with light sandy soil, such as a mixture of loam, leaf-mould, and silver sand, and finally a layer of sand on the surface, about half an inch in depth. For the top layer I use the sand dry, and I find it acts as a preservative in assisting the cuts to heal up quickly. After the cuttings are inserted, the pots should have a light sprinkle of water, just enough to settle the sand in its proper place. Some growers recommend bottom-heat for striking these cuttings, but it

is not necessary, and I have raised hundreds of young plants in a cold frame, which is about the best place for the cutting-pots until the cuttings are rooted. I have raised a great number, too, in open beds, with a few branches of yew, or something of that description, stuck between the rows to shade from the sun; but I don't like this way, for sufficient command cannot be had over the quantity of water the cuttings receive. If dry weather sets in, it would be all right, but we cannot depend upon this; and should we get a lot of rain immediately they are put in, the probability is that most of them would damp off. With these considerations before us, I should advise my readers to confine themselves to the cold frame. After the cuttings have been in a few days, they will, perhaps, require watering. I need not say that a fine rose watering-pot must be used to prevent the cuttings from being washed out or displaced; but it will be as well for me to say that they must not have too much; a light sprinkle is all that they require; and a greater danger exists in giving them too much than not enough, for they will stand getting dry without injury, but with too much wet the stems rot through, just under or on a line with the surface. During the first fortnight or so they will require shading when the sun is powerful, but give a little air at all times by tilting up the back lights, and draw the lights off for a couple of hours, morning and evening. Fancies are rather more difficult to strike than the show kinds, and therefore require more care and attention, and it is as well to give them the advantage of a mild bottom-heat, if available; but the atmosphere must not be moist with steam arising from fermenting materials.

Immediately the cuttings get nicely rooted, and before the pots are crowded with roots, pot off into small 60-size pots. Use loam, leaf-mould, and a little decayed manure for this potting, and replace in the frame; water carefully and sparingly at first, but when the roots begin to feel the outside of the pot, it must be administered more liberally, and the plants must have an abundance of air. At the same time, nip out the growing point at about the fourth joint from the base, and the young growths which push from this stopping must have their points nipped out at the third pair of leaves from the main stem. Before this is done, the small pots will have become full of roots, and require a shift, which this time must be into a five-inch or 48. After the plants have been kept close for a few days to assist their recovery, and the young roots begin to take hold of the new soil, will be the time for stopping. Never stop and repot at the same time.

This last potting ought to be done some time in September, so as to give the plants time to get established before winter sets in. During the winter, keep them in a temperature ranging from 40° to 45°, with as little fire-heat as possible, just sufficient to keep the atmosphere dry, and the frost out, and water with caution. When the plants are kept too wet at the roots, or in a damp atmosphere, the foliage becomes spotted, and covered with mildew, and when kept in a temperature too high they get drawn and weakly. To guard against these evils is simple enough, for all that has to be done is to

keep the temperature within a few degrees of what I have mentioned above. Give air when the weather will admit, and water with care.

This brings us to February, and the time to think about training and repotting the plants. My way of dealing with them is to let them become quite dry, and if they flag a little, so much the better, provided they do not suffer too much, for then the branches can be brought down without much trouble, and little fear of breaking them. If they are watered as usual, and tied down when the branches are quite stiff and full of sap, the chances are that the inexperienced would spoil half their plants, through the branches breaking or slipping off. The most skilful in these matters are unable to manage it without an accident happening occasionally, and the advantage of letting the plants get rather dry when the branches are first brought down is not quite so well known as it should be. When the branches are once brought down, there is not much difficulty in matters afterwards. I manage this by cutting a flower-stick into lengths of three or four inches each, and after a nick is cut in the top to prevent it slipping off, a piece of matting is tied round, and then they are securely fastened in the soil; the matting brought up over the branch, which can be pulled down as low as it is required, if carefully managed. After this is finished, the tops must be nipped off, and as soon as the plants are recovered, they should be potted into eight-inch or 24-size pots. This will be the last shift they will require for the season, and must, therefore, have a little time and trouble spent over it by the cultivator, so as to do it in a proper manner, for it depends upon how this is done whether the plants grow well or not. The pots should be thoroughly clean, and have about a couple of inches of crocks broken small in the bottom for drainage, and a thin layer of the rougher portions of the soil placed over, to keep the drainage from getting choked up. They must be potted firm, and kept rather close for a few days afterwards, to get established; but after this, they will require plenty of air, and the young growths to be trained regularly out with neat flower-sticks, and topped once more about the end of March. They will now require plenty of water, and a dose of manure water twice a week, until they come into flower, will help them on wonderfully.

The question of the best soil for these plants can be soon disposed of, for they require nothing but good fibrous loam and thoroughly decomposed cow-dung or hotbed manure. To make myself easily understood upon this subject, I will state that the loam should be obtained by paring off the top three inches of meadow or common land, and laying it in a heap for six or twelve months before using. Common garden soil is of very little use for any kind of plant grown in a pot; it runs together too close for the roots to ramify into it. When the good loam is wanted for using, the side of the heap should be chopped down, and mixed with cow-dung which has been exposed to the weather for a year or two, in the proportion of two barrowfuls of the former to one of the latter, and about a third of a barrowful of sharp silver sand. For the fancies a greater proportion of sand will be necessary; and half a barrowful of leaf-

mould added to the other three barrowfuls of soil will be of service in promoting a healthy root action, for they are rather delicately rooted, and require encouragement.

When the flowers begin to open, the house in which the plants are growing should be shaded with tiffany or canvas when the sun is bright, or the beauty of the flowers will be soon spoiled. Green-fly is the greatest enemy these plants have, and sometimes thrip will make its appearance. Both these pests are easily kept down with tobacco smoke, if taken in time. It is a difficult matter, besides the plants being seriously injured, if they are allowed to get ahead. Give the house a good smoking directly half a dozen can be seen. Smoke the plants for two or three nights in succession, just before they come into bloom, otherwise they will get ahead during that time, and it will be impossible to touch them, for the tobacco smoke would cause every flower to fall off. As I have already observed, they must be turned out of doors as soon as they are past their best, and pruned towards the end of July. In the process of pruning, they must be cut down to within two or three eyes from the old wood. In doing this, the shape of the plants must be considered, and the wood cut back accordingly. The plants will do very well stood out of doors until they make a new growth about an inch long, provided the weather is not too wet, for if the soil in the pots gets sour, there is a danger of losing some. In that case it will be advisable to give them the protection of a cold frame. After the growth has commenced, shake them out of the pots, remove the greater portion of the old soil, prune the roots, and repot in 48's. place in frames, and keep close for a week or two, and then remove the lights entirely in fine weather, and place in greenhouse some time in October, and repot in January, and then treat as advised for young plants. Specimens wanted in bloom in May must be stopped in January; for June, in March; and for July, the end of April. Give plenty of light and air at all times.

AN IMPROVED SYSTEM OF STRAWBERRY-GROWING IN THE OPEN AIR.



IN dealing with this subject, I thought it best to head it with Strawberry-growing in the Open Air, otherwise I felt afraid that many who might be able to receive some little benefit from it would pass it by, thinking that it related to forcing this delicious and useful fruit. As this is the season for making preparations for next year's supply, and very few people think of making plantations at this time of the year, I hope I shall gain attention. Those who thoroughly understand the importance of being able to gather a crop the first year, instead of having to wait until the second season after planting before they can reap the fruits of their labours, will not be very much in need of my advice. Perhaps I shall be met with the assertion, that if you plant the strawberry plants in July,

you lose the use of the ground too soon; but the impression is wrong, if it does exist in the minds of any of our readers. My way of dealing with this operation is, in point of fact, very similar to the common way, but, I must admit, with certain modifications, simple enough in themselves, but which are of real importance. How I manage these things I will make clear as I proceed; but before going any further, I will just say that the ideas which I shall offer in the few remarks I intend making upon this subject are by no means new; neither do I make any claim of originality in them. I have no doubt but what it was practised long before I knew anything whatever about gardens or gardening, for I was taught it when I was a young man by one who was a thorough frugarian, and knew every in and out of the question, and I have followed it up ever since—a period of some forty odd years. Though this question is by no means new, I think a few observations will be useful just now. If I did not think so, I would not ask our worthy Editor to insert this, for I would be the last to intrude upon the valuable space of the FLORAL WORLD with useless matter. I should hardly like to undertake to visit the thousands of gardens into which the FLORAL WORLD finds its way, therefore I shall be unable to prove, that in seventy-five per cent. of them the strawberry beds are planted in winter. But I am inclined to think that such is the case, even after allowing for the benefits which the proprietors derive from it.

Generally speaking, strawberry-growing is managed in this way. The existing beds are allowed to produce as many runners as they choose. These are all allowed to grow together into a complete mass, up till about November; the foliage is then chopped off, a spade run round each plant to sever the runners, and the ground hoed over, and finally the whole of the rubbish is cleared away to the rubbish-heap, after having impoverished the ground more than the main crop. If a new plantation is to be formed, the strongest of the runners are selected, which at their best are but miserably poor; and after the ground has been dug, they are planted. If this is done properly, and the ground in good heart, these will make nice plants by that time twelvemonths, and which will bear a crop the spring following. So far so good, provided garden ground is plentiful, and one quarter of it can be allowed to lay idle every now and then. This I cannot do, for every foot of my garden is required, and is valuable to me, and any waste in the way of the garden lying uncropped is so much loss, and money out of pocket. Bearing this in mind, when about to make fresh strawberry-beds, I fix upon the quarter upon which I intend forming them, and trench it up as early in the winter as circumstances will admit. No particular date can be fixed upon for doing this, as it depends upon what time the other crops come off. The depth the ground should be trenched depends in a great measure upon the nature of the subsoil, for it would do more harm than good to bring up a lot of gravel or clay, and bury the loam at the bottom. But where the nature of the soil will admit it, digging a couple of spits deep will do very well; but in other cases, where the soil is shallow, I go down one good spit, shovel up the loose soil on to the top, and break up the bottom of the trench with

a fork, and leave the soil there; and I find it answers very well. It will be as well to add, that I work in a good dressing of manure as the digging proceeds, mixing it regularly with the soil, and not shovelling it into the bottom of the trench, in the way some people adopt. In the spring, I plant this ground with early potatoes, and they come off in the summer, leaving the ground in splendid condition for the reception of the strawberry plants, the hoeing required for the crops having brought the soil which was turned up from the bottom into fine working order. Directly the potatoes are taken up, a little manure is spread over the surface and forked in, and then everything is ready for the planting.

I am aware that the time is past for talking about doing things last winter, and if no ground was trenched last winter and cropped with potatoes that is suitable, the only thing is to select the ground at once, and trench or dig deeply, and work in a good dressing of manure. Whilst this is being done, layer a sufficient number of runners, and a few over, for every one will not be fit for turning out. Layer them in three-inch pots, use good soil, fasten the runners in the pots with small pegs, select the strongest, and, where there are two plants on one runner, nip off the furthest, for it would only weaken the other. Keep them well watered, and as soon as they are nicely established, remove them from the old plants, and stand the young plants in a partial shade for a few days or a week, and then plant out. The laying of a few hundred runners takes up such a little time and so small an amount of labour, that I really cannot imagine why growers will go on in the old way of letting the runners root in the soil, and then have to grub them up with a trowel, when there is so much difference in the growth of the plants after they are planted, and the extra labour in watering necessary to keep them alive. Various opinions prevail respecting the proper distances at which the plants should be apart. Speaking in a general way, at two feet from row to row, and eighteen inches in the rows, the plants will do well, and produce good crops. Nothing whatever is gained by overcrowding, and I find it advantageous to leave a three-foot space between every second or third row, instead of two feet; it gives the plants more room, and affords greater facilities for gathering the crop without treading the plants about, or knocking the layered runners over. After the plants are turned out, the soil should be made firm round them, and kept well watered until they get established, if dry weather sets in.

I do not agree with mowing the foliage off annually, but I am convinced that if a portion of the old foliage is cut away with the knife in August, the plants are benefited by it, for it gives the young foliage plenty of room for development, and admits more light to the crowns, and consequently assists the formation of flowerbeds the following season. All runners not required for layerings should be removed immediately they make their appearance. It takes a very short time to go over a good-sized plantation, if done before the plants begin to root, when it is a matter of some little difficulty. Leaving the bed to grow wild until autumn, and then giving it a grand clear up, not only takes up more time, but it is

excessively injurious to the established plants, for the young plants exhaust the soil, and crowd up the others, and prevent that free circulation amongst them which is so essential to their well-being and the production of fine crops.

In glancing over this subject thus briefly, I am perfectly aware that much more may be said with advantage; but I think I have said sufficient to show, that if the few necessary operations are done at the right time, better results may be obtained with not so much trouble and labour as is necessary when they are performed out of season. I will conclude this brief epistle by observing that the following are good kinds that can be depended upon: *Eclipse*, *Frogmore*, *Late Pine*, good for late crops; *Keen's Seedling*—everybody knows this, for it is one of the best for general purposes; *Marquerite*, fine large fruit and free bearing; *Sir Charles Napier*, fine bright-coloured fruit, rather sharp, but a heavy cropper. For flavour, nothing beats *British Queen*, but it requires good soil, in which there is an appreciable amount of iron, and a warm situation.



CULTIVATION OF THE PEACH AND NECTARINE.

BY J. C. CLARKE,

Head Gardener at Cothelston House, Taunton.



POSITION AND ASPECT FOR PEACHES.—I shall begin this paper by saying something on the best position to be selected. Undoubtedly this should be a high and dry one: first, because the atmosphere of an elevated spot is less liable to influence from spring frosts, on account of its being somewhat less humid than that of a lower stratum of air; and, secondly, because of the natural facility it offers to secure a perfect drainage. But there are other advantages, for the atmosphere of such a spot is more agreeable and better suited to the constitution of the peach, as they not only grow up constitutionally hardy on such elevated positions, but they will upon an average maintain a more healthy and robust appearance, and, consequently, usually live to a good old age. However, it is not always that the cultivator has any choice; but for those who contemplate building peach walls, I would seriously advise them to make choice of such a spot if possible; and if such does not offer itself, why then make the best of what you have, by choosing the most eligible position, and instead of placing your wall east and west, so as to secure a south facing, be careful to build a portion of it so as to have a south-east aspect for a portion of your trees. To this, no doubt, you will find some of our craft make objections, because it is not yet sufficiently well known that many varieties of our peaches do better on a south-east aspect than on a south one; but more of that anon. While advocating this position, I must not forget to say that it should be in some measure a sheltered one, and there is nothing better than a good clump of trees in the distance,

so arranged as to break the north and north-east winds; but I am far from wishing to see our peach-trees surrounded by a wall of vegetation, depriving them of every healthy breeze that blows from whatever quarter. There are many amongst our present race of cultivators, many who have yet to learn much of the true and precarious character of the peach, for it is one of those subjects that will not adapt itself to all kinds of treatment and to a great variety of circumstances, and there are very few prepared to acknowledge its power of endurance, or its capability to resist cold when judiciously managed.

Of those positions which are known to be unfavourable for its successful cultivation, the most prominent is a damp, low-lying district, or where there is a body of water near at hand. To contend successfully against either of these requires skill of the highest order, and, happily for the reputation of our gardeners, we know of men who are now battling against such adverse circumstances, and are producing results eminently creditable to them. But to recommend the choice of such a spot for the general cultivator, would be soon to bring the whole subject into disrepute. I say, then, avoid them if possible, for it is the opinion of all who understand our climate, and who also understand the peach, that the naturally humid atmosphere of such places is highly injurious to it. Experience annually teaches us that spring frosts are more intense in low damp places than on more elevated positions; hence the necessity of choosing the latter.

PEACH WALLS seem to demand a paragraph here. It is a subject on which mistakes are often committed by the inexperienced cultivator, for there are those who have an impression that they will do equally well against a six or eight feet wall as they will upon one three or four feet higher. But this is erroneous, as there is not upon such low wall sufficient space for the proper development of the tree; and to keep them down to suit the dimensions of the wall, entails such a mutilation of some of the best wood every year, that it in time must exercise an unfavourable influence upon the health of the tree. A ten or twelve feet wall is the least height that I should recommend, and generally this will be found to suit every purpose; but, for those who may wish it, I may state that I have seen them admirably done upon fourteen-feet walls; but whatever may be the height decided upon, it should be borne in mind that the calculations here made are only up to the coping of the wall, as they are usually carried a few inches above this point. In speaking of coping, this ought to project at least three inches out from the wall, but four would be a better distance. Various materials are used for this purpose, but there is nothing better for the preservation of the wall than tiles made expressly for that purpose, and properly called coping tiles. Some, perhaps, may want to know the utility of this coping. It is essential for the preservation of the wall by carrying off the water, and also acts as a safeguard to the trees against storms and in a measure protects them from slight frosts.

THE BORDER.—I will take next for our consideration the peach border. On the proper preparation of this depends in a great mea-

sure, in some places, the ultimate success of all our labours. In fact, it is after the selection of the site the first step on the road to success, if well done. Fortunately there are instances where extensive preparations may be dispensed with, but this only occurs in some few naturally favoured positions, while there are others where all attempts to grow them even for a few years successfully have failed for the lack of this attention. But the most surprising part of this is that proprietors should be satisfied to go on from time to time renewing their trees without making an effort to do the thing well after it has once deceived them. During my time I have known many such instances, and am convinced, from what I have seen, that the expenses incurred annually for new trees and new soil would, in a very few years, cover the expenses of a properly-drained and concreted border, which would give a far greater hope of success, and would also satisfy the mind that all that could be had been done. But I am not advocating expensive borders where they are not wanted; I should much rather be disposed to give the least favourable spot a fair trial without them; but, on the other hand, I seriously advise that the following plan be carried out where there is any doubt about peaches thriving; it will save much time and many disappointments.

Take all the earth out two feet deep next the wall, and two feet six inches at the outside width of the border; this extra six inches along the front is necessary to secure a proper fall for the water, and some care is requisite to get the gradual fall from back to front. I have no faith in wide borders; ten feet is ample, as it is far better to have a narrow border well done than one twice the desired width imperfectly completed. The earth being taken out, the border is then fit for concreting. It is best to employ bricklayers for the purpose, as they are more fit for the work, and a couple of men will do a good space in a day if the materials are close at hand. If the weather is fine, the part they do one day will be fit for the gardener's use the next. A small drain-pipe should then be laid along the front, with a proper outlet; and if a four-inch wall is run along the front so as to completely confine the roots, so much the better. A covering of five or six inches of stones or brickbats is the next essential to secure a good drainage; upon this place a covering of rough turves, or any other loose material, and the border is then fit for the soil, and the best soil is undoubtedly a good mellow loam from the top spit of a pasture field turned up into moderate-sized heaps during summer for a month or two. Divide the spits into two before they are placed in the border. If the loam should be the least stiff, mix it with old mortar and brick rubbish, or any other coarse material. Rather than omit this, I would use very coarse cinder-ashes, or indeed anything that would help to keep the soil open and porous, for it is surprising, after a few years, how close and impenetrable to root action soils of this description will sometimes become. But for the peach and nectarine avoid the use of strong manure, as it creates a gross succulent growth. It is better to supply this as a mulching if at any time the trees are found to be weak. A little coarse leaf-mould may be mixed with the soil at the time of

making the border, if thought desirable, but it is not necessary. The border should be raised a few inches above the ground level, and should incline gently to the front. Avoid if possible all future cropping of the border with vegetables, or indeed anything, as it robs the wall-trees of their rightful sustenance, and no amount of manuring will make up for loss to the trees of the nourishment they should obtain from the unmanured soil.

CULTURE OF ALOCASIAS.

BY J. RANSLEY TANTON, EPSOM NURSERY.



OW seldom we see these glorious plants managed with that skill which they deserve. Their beautiful and grotesque markings render them the most gorgeous of all fine-foliaged plants, and their characters are much more aristocratic and peculiar than any other class with which we are familiar. The geographical habitats from which they have been introduced merely require to be cursorily studied to initiate cultivators into the nature of their requirements—a diurnal temperature of from 85° to 105°, falling at night often to 65° in damp morasses, shaded by some wild giant of vegetation, with the roots revelling in loose debris, occasioned by decaying vegetable refuse, which has laid and accumulated for centuries. This material, rich in humus, is what these plants delight in; in artificial cultivation we cannot too closely study the conditions which in a state of nature produce these tropical beauties and wonders.

I find the month of March is the best for starting all Alocasias. If they are started before this period, they will, in beginning to move, exhibit a want of strength and colouring in consequence of insufficient sunlight. They should at this season be taken out, and the roots well washed of all the old material, then repotted into an admixture of peat, loam, cut sphagnum, and potsherds pounded small. This should be prepared two or three days previous to using, and placed in a warm house, in order that the soil may be warmed, and brought into a favourable state for starting the roots. In potting, one-half of the pot should be filled with crocks broken fine, and the plant placed upon these, packing the soil round the plant and among the roots very carefully. When completed, a gentle hotbed should be ready to receive the plants, and the temperature kept at from 70° to 88° during the day, and allowed to fall to 60° at night. As the season advances, this temperature should be increased, the plants syringed twice a day, and the temperature of the house kept charged with moisture. This latter point should be particularly attended to, as upon this much of the success depends. About the month of June they can be removed from bottom-heat, and stood about in stoves as ordinary objects of decoration, being careful not to over-water them, or allow the water to be of a lower temperature than the atmosphere in which they are placed. Towards the latter

part of the autumn, water should be sufficiently withheld to enable the plant to sink into dormancy. This condition must not be misinterpreted. Alocasias, although tuberous-rooted plants, must not be completely dried down; a few leaves should be retained on the plant during the resting season in as healthy a state as possible. These serve to enrich with nutritious matter the old parts of the plant during winter, and also materially assist the starting the plant in spring, for it is a well-known axiom in vegetable physiology, that where these organs in a perfectly healthy state are exposed to light, they decompose carbon, extricate oxygen, and cause an insensible perspiration. The action of these combined forces causes a quicker generation and growth of the roots; beside which, the leaves are the organs which perform the functions of exhaling gases and other matters. They thereby throw off by perspiration any excess of moisture which may generate in these succulent plants during winter, and hence we may trace the chief cause of so many of this genus falling victims to decay during this most critical period of their lives.

THE CULTIVATION OF PALMS.

BY GEORGE GORDON.

IN TWO PARTS.

PART II.—SHORT DESCRIPTIVE LIST.



HAVING thus far satisfactorily disposed of the cultural treatment of these grand and extremely beautiful plants, we must turn our attention to the selection of a few of the best kinds that are more especially deserving cultivation. Were I to name all that are really good and distinct, I should not only take up more space than I can reasonably hope to be spared, but I should confuse the readers, and make them think they would require a house as large as the Palm House at Kew, or a miniature Crystal Palace, to grow them in. I do not want to frighten my readers, but I do want to encourage them to take these plants in hand boldly, and thus add a large amount of grace and beauty to their collections where much monotony at present prevails. It is not necessary that they should have large and lofty houses; for though many of the palms attain an immense



ARECA RUBRA.

height in their native countries, they are very slow growing when subjected to a lower temperature in this country.

To take the kinds which require a stove temperature, first, I will just observe, that nearly all of those which I shall name will suffer no injury if placed in the conservatory from the end of June until September. It is not safe to place them there earlier than June, for if they are subjected to a low temperature before the new growth is completed, the fronds will be poor and stunted, and the beauty of the plants materially interfered with. Another consideration which ought not to be lost sight of in bringing them into the conservatory, is to guard against exposing the plants to cold draughts, more particularly when they are first brought there. I am well aware of the difficulty in forming a select collection when there are so many good ones, so as not to leave out any of the best kinds, but as I must begin somewhere, I will make a



CARYOTA SOBOLIFERA.

start with the Cabbage Palms, and first on my list I will place

Areca aurea, and *A. rubra*, both strong-growing kinds, with long pinnate fronds, which attain to eight or ten feet in length in full-grown specimens, but particularly beautiful when young. We have some good things amongst the

Calamus, an interesting genus, and first on my list I shall place the lovely *C. asperrimus*, and then follows the equally fine *C. elegans*.

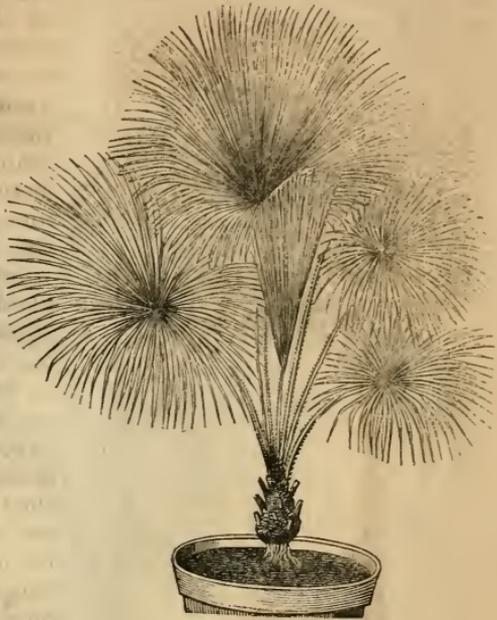
Caryota sobolifera is a grand palm where there is plenty of room;



LIVISTONIA OLIVIFORMIS.

it has fine spreading and graceful foliage, with the small leaflets, being very similar in shape, though much larger, to *Adiantum trapeziforme*. *C. urens* is a stronger grower than the preceding, but somewhat like it.

The *Cocos*, or cocoa-nut genus, furnishes us with some species that we must not on any account pass over. First on the list we must place the beautiful *C. Weddelliana*, for there is not another in the whole family that can beat it, where a small growing plant is required. The fronds are rather small, and remarkably graceful, being boldly pinnate and intensely glossy. With this plant in good condition, no difficulty need be experienced in finding a centre decoration for the dinner-table; indeed I know of nothing which presents such a thoroughly beautiful appearance in this capacity. It is known under two names, the other being *Leopoldiana pulchra*.



LIVISTONIA SUBGLOBOSUS.



CORYPHA AUSTRALIS.

Another good species, and equally beautiful, though of a totally different magnitude, is the magnificent *C. nucifera*, the true "Cocoa-nut Palm." All that it requires is plenty of room to develop its beauty. And it is one of the easiest to obtain; for there is no outlay necessary, beyond speculating a few pence upon a cocoa-nut, and by treating it as recommended in the chapter upon sowing seeds, you will have a plant in four or five years' time worth nearly as many guineas as you paid pence for the nut. I am not speaking at random, for at the present moment I know a plant, raised from a nut planted four years back, that stands over six feet high, and for which the proprietor would not take less than five guineas in the ordinary way of trade. It is not in the possession of a private grower, who could set any fancy price upon a plant because he had no wish to part with it. I have also seen two plants, raised by a private grower in the same space of time, that now stand twelve feet high,

with immense fronds. I have mentioned this rather fully, to enable any one to see how easy and simple these plants are to cultivate, and with what a very small outlay anyone can begin with, if they are content to commence in a small way. *C. coronata* and *C. Peruviana* are both good kinds.



ACANTHOPHENIX CRINITA.

Demonorops plumosa is one of the most elegant palms grown. A small grower. The leaves are a fine deep green, handsomely plumed. *Euterpe edulis* is especially good. It grows with a slender stem, and from the summit it throws out on all sides beautiful dark green, arching fronds. Whether twenty inches or twenty feet high, this is one of the very best.

Livistonia olivæformis and *L. subglobosus* are two of the grandest fan palms grown; too much cannot be said in their favour, and they are both cheap.

Phœnicorophorum Sechellarum is rather a rare but extremely beautiful palm, from the island of Seychelles. The leaves are dark green, spotted with bright orange, and the stem and leaf-stalks are armed with long needle-shaped spines; a very distinct kind.

Thrinax presents us with several splendid species. *T. argentea*, *Martii*, *elegans*, and *radiata*, are all first class.

Verschaffeltia splendida.—I will not go so far as to say that this is the most beautiful palm grown, for each has its own style of beauty; but I can say that it is one of the grandest and loveliest of the whole family. The leaves are bright green, oval shape, and will measure upon a moderate specimen four feet long by three broad. However select the collection may be, this ought to be one. It is so very distinct from the others.

Acanthophœnix crinita is one of the grandest stove palms known; quite surpasses the best *Thrinax* in elegance of outline. The fronds are pinnate and fern-like, gracefully sickle-shaped and glossy, and the stem is beset with dark spines. Plants of this are at present very scarce and dear, but Messrs. Hooper and Co., of Covent Garden, offer fresh seeds at a florin each; and it would be an interesting speculation, for any one fond of such amusement, to take half a dozen or more seeds in hand, and have patience with them.

Amongst many others which will grow and do well in any greenhouse from which the frost is kept out, select at random from the following list:

Areca Bauerii and *A. sapida*.—Both are handsome species of the Cabbage Palm, which can be depended upon for this treatment.

Brahea calcarea and *dulcis* are two beautiful palms, with large fan-shaped leaves, from Mexico.

Chamærops Fortunei is an extremely beautiful species, and, in fact, so are *Ghiesbreghtii humilis* and *tomentosa*; they are all first-class, and particularly adapted for small houses, and are, without question, the hardiest of the family.

Corypha australis is a beautiful fan palm; one of the best for the



THRINAX PARVIFLORA.

conservatory. *Chamædorea elegans*, *C. Ernesti augusti*, and *C. Verschaffeltiana* must not be forgotten, for they are all first-rate.

Latania Bourbonica is the hardiest of the genus, and at the same time one of the most beautiful. Nothing can exceed the beauty of its spreading fan-shaped leaves. Without question it might be in every collection; and the price of small plants is no more than that of a Tom Thumb geranium! The date palms furnish us with several splendid species, which add a grace and beauty to our conservatories not attainable with the ordinary greenhouse plants alone.

Phœnix dactylifera, *reclinata*, *sylvestris*, and *tenuis* are four of the best of this section. There are numbers of others equally desirable, but I fear that I have already taken up too much space, therefore I will name but one more, and that shall be the charming

Thrinax parviflora.—Though the sketch is correct enough, it fails to convey a full idea of its extreme beauty.

I intend saying something about their value and usefulness for indoor decoration and plant cases, but that must be left for another paper. Perhaps enough has been said about the value of palms for table decoration, but I cannot resist adding a word on their admirable fitness for filling ornamental pots, vases, epergnes, etc., things which, if people possess, they like to use, but which, where there are no proper plants for them, get sadly misused. The figure which closes this paper is an illustration of the above remark, the palm represented on a bracket being the right plant in the right place. We have to thank Messrs. Barr and Sugden for the opportunity of illustrating this mode of turning palms to account for room decoration.



SELECT STOVE CLIMBERS.



THE great mass of tropical climbers are dubbed as "rubbish," and thrown away, because we cannot afford them space and freedom to develop into the things of beauty they are in their own wild woods; and though comparatively few are capable of being shown in full perfection in our stoves, yet we have quite enough of tractable subjects to depend on a marvellous display of beauty from the roofs of our plant-houses, if we will give them the treatment they require.

STEPHANOTIS FLORIBUNDA is frequently seen in a fair state in pots, but that is not *the* way to grow it; and those who do not grow their pot plants as well as our best gardeners exhibit them, may have plants of Stephanotis in pots which will yield but a few flowers, and frequently none at all. The plant wants more room than pots usually afford, and it should be planted out in a nice little bed, which almost every stove will afford a place to make. The best Stephanotis the writer has seen was grown in a rather old-fashioned vinery used for early work, and which had a deep pit in the centre filled with leaves every January, two corners of the pit being cut off by a wall of single bricks; and in this the plant was planted, the shoots being trained thickly to two rods that ran the whole length of the house, and those were literally masses of bloom, more flowers being in the house than could be produced by several dozen plants grown in pots. It may not be so convenient to get so good a place for the roots in every stove. Of course they were warmed by the lasting leaf heat, but any bed of nice earth in a stove will suffice, and as the surface of the bed or beds will be as useful as any other part of the house for standing pot plants, etc., on, it is all the more desirable to adopt this mode. This is the way, too, the Stephanotis is grown in some of our great London nurseries where a great quantity of the flowers are required. It is generally useless to particularize the soil in which such plants as the Stephanotis will grow; indeed, it is probably not known in what soil they will *not* grow, if the other conditions are observed. "Peat and loam," "loam and peat," etc., etc., the everlasting specifics of the compilers of some garden books new and old, will of course grow it, so will any open soil. Usually the watering is a good deal more important than the soil, and the way most people err now-a-days in watering pot plants is by not giving enough. If a plant is well drained, and in a good healthy state, it is hardly possible to kill it with water; but if, through insufficient watering, two or three inches of the soil of the surface is "wet enough," and, as is frequently the case, the lower half as dry as dust, then comes death and injury such as no over watering could produce. The best way to cure this evil of insufficient watering is to insist that all plants in large pots shall be watered twice when they *are* watered, and to leave sufficient room when potting for a fair supply of water to be poured on the surface of the pot. The roots of plants growing naturally may be dry at the surface; moisture is sure to be seen in the soil at twelve inches

deep even in the driest season, and if not there the roots will follow till they find it; the extremes of root generally finding pabulum enough below to withstand the fiercest drought; but your dribbling waterer reverses all this, by only moistening that part of the ball which is most devoid of roots, or without them. More, many more, plants are killed from not being watered through and through till every interstice is swollen with moisture than from any other cause whatever.

Stephanotis is as "dirty" a plant as any, and quite a favourite "hunting-ground" of the mealy-bug. It usually gets into such a black and white state with filth, that it is necessary to take it down from wires and rafters, and wash away very tediously till the leaves look themselves again; but all this is attended with a deal of trouble, independent of injury to the plant, which usually suffers much by getting its leaves and shoots cracked from the taking down, washing, and putting up; and besides by this treatment Stephanotis is rarely clean except for a few weeks after the washing. The best way to keep it clean is by the free use of the engine, the water to be finely divided by the finger, but driven strongly, and this at all seasons, except when the plant is in flower. By training in rather close wreaths a foot or so from the glass, instead of training the shoots all over the roof, this syringing process may be facilitated, and with less interference with other subjects. The Stephanotis, too, looks much better in rather a close mass than when the single shoots are much separated. By having it trained lengthways, a more equal display of bloom may be obtained.

CISSUS DISCOLOR.—In marked contrast to the last, but of the greatest value for the beauty of its leaf alone, is *Cissus discolor*, the most beautiful of all "fine" or "ornamental" leaved climbing plants. Instead of "getting green" or sickly-looking at the points after the summer's work is over, it may often be seen depending a few shoots in autumn, which for marvellous colouring and coruscations of the most lovely tints that ever gladdened the eye, are unequalled by any leaf or flower in cultivation. This, however, is best seen when the minor branches hang down in a fernery, or shady moist stove. A nice plant on a trellis is of course a beautiful object, but it is only when half-wild ranges of shoots are allowed to gracefully and freely hang down "in the way" from a healthy specimen that the real beauty of the plant is seen. It is usually very well managed in the Victoria House at Kew, and forms splendid wreaths and pillars there, but the house is too light and dry for the beautiful colouring of the plant. It is perhaps in Mr. Bewley's noble stove near Dublin that *Cissus discolor* shows its chief beauty in these islands, for there it is allowed to fall down "free as the flowers of May," from rocks and rafters, so that here and there it obscures the view; and besides, it is only in this hanging condition that you can readily see the full beauty of the varied tints from old leaves to young. Of course *Cissus* is, like most other plants, fond of good cultivation or good living, but any rich and light soil will grow it well; it likes a partially shaded house, and plenty of water, during the fast-growing season.

ALLAMANDA is a splendid genus for our stoves, though from being generally seen tied to round-headed trellises, and made to look as devoid of grace or freedom as the stiffest-tied New Holland bush, they might almost be left out of the nurseryman's list of "stove climbers." They are capable of highly successful cultivation in pots, but that is no reason why we should not oftener see them depending in beauty from the roofs of stoves. They will hardly be grown well where the principles and practices of good cultivation are not carried out, although not very fastidious. Bottom-heat and free culture, with plenty of light, are essential to marked success with these plants. A pit with bottom-heat suits their wants exactly during the growing season, as, indeed, it does those of a great number of choice stove plants, for who ever moved a lot of plants from the "stove" to a good warm pit with bottom-heat afforded by tan or leaves, etc., mixed, without seeing a change for the better come over them that could never occur in the ordinary hothouse? Doubtless the reason of this is that in a pit with bottom-heat there is regular and abundant moisture in the atmosphere, and moreover the plants are much nearer the glass and light than they usually are in stoves. Allamandas must be "ripened off" in the autumn, and started into growth in spring again as vigorously if possible as young vines. Like them, too, they should be induced to ripen their wood well, and in spring the plants may be pruned well back. When growing vigorously in spring, the shoots may be stopped once or twice with advantage. *A. Schottii*, *Aubletii*, and *grandiflora* are among the best, if not the very best.

CLERODENDRON THOMSONIÆ.—A good new stove climber is very rarely introduced, and when it is, in the majority of cases its goodness is only sufficient to keep it before the eye of the horticultural public for a few years, when its novelty wears off, and there being no distinct merit it falls out of repute, and perhaps out of cultivation; but this fate cannot happen to the comparatively new *Clerodendron Thomsoniæ*, which for thorough distinctness and merit is unsurpassed among stove climbers. It is easily grown and flowered by the treatment usually awarded to stove subjects worth growing, and should be in every stove of the slightest pretensions.

BOUGAINVILLEA SPECIOSA.—Bougainvillea may be beautifully grown in an "intermediate house" or cool stove, or even in a warm and light greenhouse. It is desirable that the plant should be allowed to make a good free growth near the glass, and that growth should not be pruned back, for it is probable that annual cutting back, and thus removing the ripened and flower-bearing wood, has been the cause of many failures with the Bougainvillea. It may be well grown in a tub or large pot, or in a little brick bed so drained or arranged that the roots cannot get into the wet and humid soil which often abounds in the floor of stoves, under the tiles, in old beds, etc. Bougainvillea *glabra* is freely bloomed by Mr. Turner, of Slough, in 48-size pots, and in great places it is often seen as a stove "tree" twenty feet high; *glabra* is not so beautiful as *speciosa*.

DIPLADENIAS.—The fine and delicately-coloured flowers of the Dipladenias must grace every good collection of stove climbers, and,

as one great grower of *Dipladenias* used to train them to the rafters of his stove till six weeks before exhibition time, and then take them down and train on to the trellises on which they were shown, there is nothing to prevent them being seen in the most natural position, for *Dipladenias* are the best of climbers.

PASSIFLORA PRINCEPS is the most useful and beautiful of that ravishing genus, and with good reason. Instead of flowering thinly in the axils of the leaves, it furnishes racemes of brilliantly coloured flowers and buds, all flowering freely, and makes when well grown one of the most beautiful objects ever seen in the stove. Planted out under the front bench, and trained in wreaths from one rafter to another—the racemes of flowers being allowed to hang down naturally between the front walk and the glass, about level with the eye—it will vie with the best of those already mentioned. No plant is better suited for indoor embellishment, vases, baskets, etc., and it is almost a continuous bloomer. Ordinarily good stove treatment is all that is required if grown freely near the glass—no difficult matter with a passion flower; the flowering will take care of itself.

PASSIFLORA QUADRANGULARIS.—Beautiful as is the individual flower of princeps, it, with many others, must succumb in that respect to the marvellously beautiful *Passiflora quadrangularis*—the *Granadilla*. This had better be planted out if it is desired to develop the full beauty of the plant. The *Granadilla* may be easily fruited in our stoves, but it will be necessary to carefully impregnate the blooms, as the breezes and insects which help to fertilize the ovary in its native country are impossible in our stoves. The roof of a stove with fruit and flowers of the *Granadilla* suspended from it is by no means a common sight, but it is quite easy of accomplishment. The fruit is often imported, though the “*Granadillas*” of the shops are sometimes the produce of *Passiflora laurifolia*.

HOYAS.—The *Hoyas* are largely used in good plant places as stove climbers, but it is doubtful if any of them are in this respect better or more interesting than the old *carcosa*, which used to be so easily grown by the old gardeners; often in a small pot a plant would cover the back wall.

RHYNOSPERMUM JASMINOIDES—generally grown and catalogued as a greenhouse climber—may be well grown in the stove and intermediate house, and nothing can be better worthy a position there. It is usually shown well as a pot plant, though, strange to say, not so well at the London shows as elsewhere, and may be grown to cover a six-foot trellis with a sheet of snowy blossoms. It is to stove and greenhouse climbers what the common *Jasmine* is to hardy wall plants.

THUNBERGIA HARRISII will repay cultivation wherever a rather large collection is aimed at, as it produces its fine large blue flowers in tolerable plenty, is of fine habit, and of the easiest culture.

W. B.

NEW PLANTS.



MARANTA VIRGINALIS, *Chaste Maranta* (*L'Illustr. Hort.*, t. 550).—Marantaceæ. A pretty addition to this interesting class of plants; the leaves are of a full grass-green colour, with three white feathery stripes proceeding from the base to the apex.

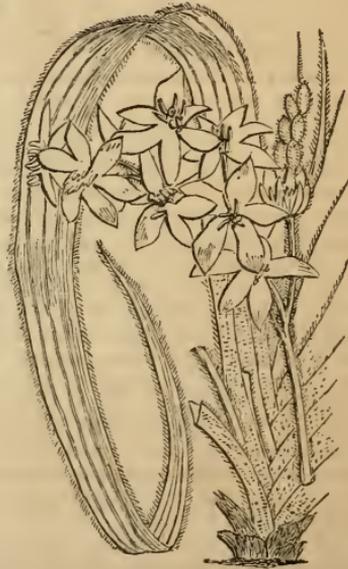
ZYGOPETALUM MARGINATUM, *Zygopetalum with margined lip* (*L'Illustr. Hort.*, t. 552).—Orchidaceæ. A pretty species from Central America; the most distinguishing feature is the lip, which is broadly elliptical, and has a broad margin of rosy purple. The other parts of the flower are of a creamy white colour.

CAMELLIA VIRGINIA FRANCO (*L'Illustr. Hort.*, t. 554).—A flower of medium size, petals pointed and imbricated, colour delicate blush, with a few streaks and bars of pale red.

PANICUM PLICATUM, **FOL. NIVEO-VITTATIS**, *Folded-leaved Panic grass, with snowy stripes* (*L'Illustr. Hort.*, t. 555).—An elegant variegated-leaved tropical grass.



BEGONIA SUTHERLANDI.



HYPOXIS ELATA.

CYMBIDIUM PENDULUM VAR. **ATROPURPUREA**, *Pendulous Cymbidium purple-flowered variety* (*Bot. Mag.*, t. 5710).—Orchidaceæ. A pleasing variety of a well-known orchid. The flowers are of a dull chocolate purple colour. The lip whitish, with purple spots.

STOBÆA SPHÆROCEPHALA, *Round-headed Stobæa* (*Bot. Mag.*, t. 5715).—Compositæ. A handsome golden-flowered thistle-like plant, adapted for the shrubby border. It is a native of South Africa.

BEGONIA SUTHERLANDI, *Dr. Sutherland's Begonia* (*Bot. Mag.*, t. 5689).—Begoniaceæ. The most elegant of the recently-introduced Begonias from Africa. It was discovered by Dr. Sutherland in the western mountains of Natal, at an altitude of 3500 feet. The branches and veins of the leaves are of a bright vinous red, the leaf blade light green, the flowers bright orange red.

HYPOXIS ELATA, *Tall Hypoxis* (*Bot. Mag.*, t. 5690).—Hypoxidæ. The handsomest of all the hitherto figured species of this interesting genus of African bulbs. The leaves are very numerous, a foot to a foot and a half long, the flowers numerous, two inches in diameter, golden yellow.

THE RIGHT MOMENT.



THIS is the right moment, and the ground is in the right condition, for planting out winter greens of all kinds to have them strong and fine before winter, for you know they grow very little during the winter season. Thin the seed-beds, and the plots on which the first lots were pricked out; and do not waste a plant, for the smallest will come to something if planted now in a generous soil, and *if planted properly*. Of course you know how to plant a few kail or savoys; and it would be an insult to suggest that when they are taken up in large numbers, and left laying about in the sun for hours together, it does them a deal of harm; it is a loss of at least a fortnight's growth, and of ounces, pounds, hundredweights, or tons of actual food, according to the extent of your operations and the degree of the punishing process. To be fiddling with winter greens, and planting them with as much care as if they were worth a guinea a plant, would be ridiculous; the fact is, it don't pay. But, on the other hand, sheer carelessness is sheer wrong, not so much to the plants as to yourself; and I am thinking of *your* interests as I write this.

I dare say you have often been perplexed at the directions in the calendars about planting winter greens. You read that they require good soil, but that much manuring may cause them to be tender in constitution, and result in losses during hard weather. Both statements are strictly true, and to hit the golden mean there are three things to be borne in mind. First, select ground that is in good heart, but not rank with manure. Plots that were liberally manured in spring, and have since then been cropped with peas, etc., will be in good condition for winter greens. Second, make a distinction between those crops which are to be consumed before winter actually commences, and those that must stand till spring. For instance, Brussels sprouts are generally cleared off before the new year; we seldom have severe weather till after the turn of the year, and, therefore, Brussels sprouts may have a thoroughly rich soil, and they ought to have it if a good return is wished for, and they ought to be in their final places early, or they will be little good. Thirdly, you may quicken the growth of the plants by a process which prevents a rank growth in winter, and which answers admirably where, through pressure of work, a general manuring cannot be done. The ground will, of course, be freshly dug. When ready for planting, draw drills with the hoe two or three inches deep, spread half-rotten manure along those drills, draw the soil over, and plant. The plants will "take hold" of the manure instanter, and go ahead; but of course they will soon use up the nourishment in it, and before winter will be properly checked in their growth so as to endure the hardships of the season. This is a capital plan to secure handsome winter greens in exposed localities where general and liberal manuring would be unsafe.

The right moment has arrived, too, for numerous operations in the flower-garden. Now, you enthusiastic amateur, if you don't want to be always buying plants, this is the time to propagate them. Do you want hotbeds? Put your hand on the common soil, and you will find that the earth itself is a hotbed. You may propagate zonal geraniums to any extent by putting cuttings in the open border in the full sun, and if you give them water as they need it to keep the soil moist, every one will make roots, and be a fine plant for potting in October. But a far better way is to take nice cuttings of four or five joints each, and pot them separately at once in four-inch pots, and pack all these pots close together in a frame, or any spare place where there will be no fear of worms getting into the pots. It costs more time in the first instance to do them this way, but it is a gain of time in the end, because they will need no more potting till next spring, and every plant so produced will be worth at least three plants produced by cuttings in the open border, as being struck in small pots they will have a close short growth from the first, and will be bushy and compact when potted or planted out next season.

Now, too, is a good time to propagate by cuttings all the petunias, verbenas, and fuchsias you really wish to obtain stock of. When the propagating is deferred till late in the season, great numbers of such things are inevitably lost in the winter, but if struck between this time and the first of August, their pots will be full of roots before winter, and they will be hearty and strong to resist evil influences.

But these must not be put in the sun; they must be kept rather close and shaded, not too wet, but never dry, and as soon as they begin to grow to be fully exposed to the sunshine, the showers, and the breezes.

Nor less important is it to be looking after herbaceous plants. Take in hand a catalogue of some respectable seedsman, and mark off all the useful subjects respecting which you have heard through these pages; buy the seeds and sow at once. All these things may be raised with the greatest ease now, for the simple reason that the earth is a hotbed, and the still better reason, that *this is the proper time to sow them*. Within a short time of this I shall have thousands of seedling plants of *Alyssum saxatile* by the method I told you of a few weeks ago. I shall have also seedling phloxes, pentstemons, hollyhocks, sweet Williams, campanulas, columbines, delphiniums, iberis, walls, silenes, linums, potentillas, antirrhinum, polyanthus, and fifty other good things, for blooming next season, and I shall get them by sowing on beds of fine earth, and shading the beds with a few reed hurdles, and they will pretty well take care of themselves after the seed is sown. Some, of course, will be potted in September to keep through winter in frames; some will be planted in September in the places where they are to bloom; and some will remain in the seed-beds till spring. It is at this season that nature sows the seeds of all such things; the seeds ripen in the pods, fall to the ground, and, after the next shower, the ground is covered with the little plants. How much better that we should follow the instruction offered us by nature, instead of fussing and fuming to raise such things by seed sown in spring, when there is so much work of other kinds that can only be done in spring; and for this particular kind of work spring is the worst time in the whole year.

Lastly, to avoid making too long a story, this is the right moment to look over your stock of flowering plants of all kinds; see that they are correctly labelled, and write new labels if need be. Among your geraniums, verbenas, petunias, fuchsias, etc., etc., you will find some subjects not good enough to propagate. Mark off all that are worthless, or that are really superseded by better things, so that when the bloom is over they may be destroyed or given away. In the meantime secure the best of the new varieties in the classes you have a fancy for, so as to enjoy to the full all the advantages of the advances made in floriculture.

TOM TIDDLER.

HORTICULTURAL AFFAIRS.

THERE have been so many of the principal horticultural exhibitions held during the past month, that we are unable to do anything beyond giving them a passing notice, for to do them all full justice would occupy the whole of the pages in this month's number, and we do not suppose that many of our readers are desirous of seeing that done, and it would in some cases be a repetition, for in several instances we have seen the same plants shown at all the exhibitions.

NATIONAL HORTICULTURAL EXHIBITION, MANCHESTER.—As we observed in our June number, this was a decided success. The orchids, from Dr. Ainsworth, Mr. Stevenson, and Mr. Jones, in the amateur classes, and from Mr. B. S. Williams, Holloway, and Mr. Dixon, Beverley, were beyond praise. The stove and greenhouse plants, from Mr. Baines, gardener to H. L. Micholls, Esq., Bowdon; Messrs. Cole and Son, Withington; Mr. T. Kendal, and several others, were such as can only be seen in the neighbourhood. Amongst other plants, Mr. Baines had fine examples of two of the North American pitcher-plants, namely, *Sarracenia flava*, with pitchers three feet high, and a pan of *S. purpurea* a yard across, a perfect sheet of pitchers, both in the highest state of health. We are bound to pass over a host of palms and other grand examples of ornamental-foliaged plants, but we must find room to notice the beautiful *Cocos Weddelliana* (or *Leopoldiana pulchra*), for it is the handsomest palm in cultivation, and one of the very best for small houses. To speak the sober truth, there is not another to equal it where space is limited. With this we pass on to the grand azaleas from Mr. C. Turner, Slough, and Messrs. Lane and Son, Great Berkhamstead, and Sir James Watts, all of

whom obtained first prizes in the respective classes of ten, eight, and six. Mr. Turner's were grand plants, seven to eight feet high, and six to seven feet through, perfect cones, and such solid masses of bloom that scarcely a leaf was visible. The kinds were Holdfordi, Iveryana, Chelsoni, Sir Charles Napier, Etoile de Gand, Duc de Nassau, Brilliant, and Flower of the Day. Roses in pots were shown in grand condition, Messrs. C. Turner, Messrs. Lane and Son, and Messrs. Paul and Son being amongst the principal prize takers. The following varieties were amongst the best: Anna Alexieff, Anna de Diesbach, Céline Forestier, Général Jacqueminot, Charles Lawson, Juno, Maréchal Vaillant, Souvenir d'un Ami, La Reine, Lælia, Madame Domage, Charles Rouillard, Coupe d'Hébé, Duc de Rohan, Louise Peyronny, Paul Perias, Vicomtesse de Cazès, Alfred Colomb, Thorin, Comtesse Charbrilland, Josephine Beauharnais, Prince of Wales, Mademoiselle Margaret Dombraïn, Alba mutabilis, Hippolyte Flandrin, and Madame Margottin, Messrs. Paul and Son, of Cheshunt, were awarded first prizes for two grand collections of cut roses. Three prizes, amounting in all to ten pounds, were offered in the class for "50 hardy alpine and herbaceous plants," and the competition produced a delightful display. Some of the competitors presented in their collections plants not properly admissible, and in many cases the names attached were incorrect, as, for example, a tuft of *Sisyrinchium* labelled "*Iris pumila*." Of course there could be no such defects in the collection presented by Messrs. Backhouse and Son, of York, who took first place in the awards. The plants in this group were strictly hardy, and of the tufty, flowery, open-air loving dispositions requisite to constitute them members of this interesting class of garden plants. We are bound to give the names of Messrs. Backhouse's fifty, both because of their intrinsic merit, and to gratify the ever-recurring hunger of the British public for information about such plants. The collection comprised the following: *Aubrietia purpurea variegata*, *Saxifraga crustata*, *Anthyllis montana*, *Silene alpestris*, *Hyacinthus amethystinus*, a lovely plant, with azure-blue flowers; *Artemisia alpina*, *Erinus alpinus roseus*, *Hippocrepis grandiflorus*, *Linum tauricum*, *Primula farinosa*, *Viola pedata*, *Astragalus hypoglottis alba*, *Geranium cinereum*, *Saxifraga tenella*, *Vicia argentea*, *Paradisea liliastrum*, *Allium triquetrum*, *Ajuga alpina*, *Aronicum scorpioides*, *Dianthus cæsius*, *Ranonda pyreniaca*, *Erigeron Roylei*, *Dianthus alpinus*, a glorious tuft, covered with large rosy pink flowers; *Primula Sikkimensis*, a Himalayan cowslip; *Iberis coriacea*, *Silene rupestris*, *Pinguicula grandiflora*, *Sisyrinchium odoratissimum*, a very pretty species, the flowers bluish, with brown stripes; *Erodium macradenium*, *Linaria alpina*, one of the loveliest of all Alpine and rock plants; *Saxifraga stenopetala*, *Oxalis floribunda*, *Lychnis viscaria alba*, *Orchis nigra*, *Aubrietia Campbelli*, *Tulipa persica*, *Houstonia cerulea*, *Saponaria lutea*, quite a curiosity; *Lithospermum prostratum*, *Dodecatheon integrifolium*, *Saxifraga longifolia vera*, a splendid plant, with many crowded racemes of large white flowers; *Antirrhinum rupestre*, *Mainanthemum bifolium*, *Gnaphalium leontopodium*, *Orchis laxiflora*, *Papaver nudicaule*, *Erinus hirsutus*, *Cerastium montanum*, *Oxytropis pyreniaca*. Messrs. Yates had the second place in the competition, with a pretty collection, in which we noticed *Dodecatheon elegans*, *Lithospermum fruticosum*, *Saxifraga serrulata*, *Linaria cymbalaria*, *Linum flavum*, *Allium ciliatum*, *Armeria maritima alba*. Mr. Shaw had the third place. In this lot we noticed a pretty variegated-leaved form of *Iberis semperflorens*, also the old and good *Sisyrinchium anceps*, *Achillea millefolia variegata*, a charming thing, the creamy variegation having a most peculiar but elegant appearance, mixed with the fresh bluish-green proper to the plant; *Chamæpeuce Cassabonæ*.

RHODODENDRON SHOW AT SOUTH KENSINGTON.—Messrs. Waterer and Godfrey's exhibition of these beautiful flowers has been especially good this year. Amongst the new kinds the following are first-rate: *Caractacus*, *Horatio*, *Lady Armstrong*, *Mrs. G. H. W. Heneage*, *Mrs. John Clutton*, *Mrs. Milner*, *Mrs. R. S. Holford*, *Mrs. W. Bovill*, *Old Port*, *Purity*, and *Scipio*. Of older kinds we noticed as especially good and distinct, *Alarm*, *Album elegans*, *Atrosanguineum*, *Blandyanum*, *Brayanum*, *Blysianum*, *Concessum*, *Everstianum*, *John Waterer*, *Lady Emily Cathcart*, *Minnie*, *Mrs. John Waterer*, *Murillo*, *Nero*, *Onslowanum*, *Purpureum elegans*, *Purpureum grandiflorum*, *Roseum elegans*, *Roseum grandiflorum*, and *Titian*.

ROYAL HORTICULTURAL SOCIETY'S grand summer show, held from the 2nd to 5th of June, was a decided success, for both arcades and the large conservatory were filled to repletion with valuable and well-grown plants; but we pass over all

the beautiful collections of orchids, azaleas, ericas, stove and greenhouse plants, and just glance at the fine foliage plants, ferns, and pelargoniums. Taking the ornamental-foliaged plants first, we have, in the open class for 9, Mr. Fairbairn, gardener to the Duke of Northumberland, Sion House, Isleworth, first, with as grand and well-matched a lot of plants as one could wish to see; the collection comprised fine examples of *Latania borbonica*, an immense size; *Cocos nucifera*, fine; *Areca Baueri*, *Croton pictum*, fine, large, beautifully-coloured specimen; *Anthurium acaule*, fine; *A. magnificum*, splendid foliage; *Alocasia metallica*, a grand plant five feet across; and *A. macrorrhiza variegata*, large beautifully-variegated foliage. Mr. Taylor, gardener to J. Yates, Esq., Lauderdale House, Highgate, second, with a fine lot of valuable sorts, but they required a few bright-foliaged plants to relieve the dark green of the others, and brighten up the collection. The collection comprised fine examples of *Pandanus Javanicus variegatus*, *Dion edulis*, grand; *Circuligo recurvata*, *Cycas circinalis*, with immense stem and beautiful fronds (this plant must have stood quite twelve feet high); *Dracæna Veitchi*, a fine plant, and one of the best of the green-leaved kinds; *Encephalartos caffra*, a fine plant; *Rhopala corcorvadense*, and a fine Sabal palm. Mr. Williams third, with two fine *Crotons*, variegatum and angustifolium, *Pandanus utilis*, *Alocasia metallica*, *Dracæna indivisa*, *Latania borbonica*, and *Dion edule*. Mr. Burley fourth, with *Dicksonia antarctica*, *Aralia Sieboldi variegata*, *Chamærops Fortunei*, *Dracæna indivisa*, *Musa vittata*, *Cycas circinalis*, *Rhopala de Jongi*, and a richly-coloured example of *Croton variegatum*. We say, again, that four such grand collections of fine-foliage plants are seldom seen together, and it was no slight honour to stand at the head of them. The collections in the sixes open to amateurs only were, on the whole, made up with rather smaller plants than in the nines; but they were principally grand examples of the respective kinds. Mr. Taylor, Highgate, first, with *Chamærops humilis*, large and fine specimens; *Theophrasta imperialis*, *Cycas revoluta*, a beautifully-grown plant, with splendid fronds, and densely furnished with them; *Encephalartos Lehmanni*, fine; and a fine *Litsea juncea*. Mr. Fairbairn, Mr. Carr, Mr. Butt, Mr. May, and Mr. Young contributed fine collections in this class. We cannot spare the space to go through the collections separately, but we will mention a few of the principal plants in them. Mr. Fairbairn had a fine *Pandanus elegantissimus*, *Thrinax elegans*, *Anthurium cordifolium*, *Croton angustifolium*, and a splendid plant of *Dieffenbachia Baraquiniana*. Mr. May had some beautifully-grown plants of *Alocasia metallica*, *A. macrorrhiza variegata*, *Caladium Veitchi*, and two *Crotons*. This collection was ruined for want of variety. Mr. Carr had a fine *Maranta Porteana*, and *Gymnogramma chrysophylla major* in his lot; and Mr. Young, *Yucca aloifolia variegata*, *Cycas revoluta*, and *Zamia Lehmanni*.

Ferns, both British and Exotic, were shown in the greatest profusion. Mr. B. S. Williams first for twelve, with *Alsophila contaminans*; *Dicksonia antarctica*; *Cyathea princeps*, a fine specimen; *Woodwardia radicans*, *Marattia elegans*, *Adiantum cuneatum*, a fine well-grown plant in beautiful condition; *Cyathea Smithi*, *Cibotium Scheidei*, *Lomaria zamæfolia*, *Gleichenia spelunca*, *G. circinata glauca*, and a fine *Alsophila* species. Mr. Taylor second, with fine specimens of *Dryopteris vivipara*, *Todea africana*, *Cyathea medullaris*, *Cibotium princeps*, *Davallia bullata*, *Cyathea excelsa*, *Dicksonia antarctica*, *Phlebodium aureum*, and *Microlepia strigosa*. In the amateurs' class for six, Mr. Young first, with good plants of *Gleichenia flabellata*, *G. spelunca*, *Cyathea australis*, *C. dealbata*, and *Alsophila australis*. Mr. May second, with a beautiful collection of smaller-growing kinds than in the preceding lot, including *Adiantum cuneatum*, a fine plant three feet across, in the best of health; *Lomaria gibba*, *Nothochlæna nivea*, *Asplenium nidus*, and a grand plant of *Pteris aspericaulis*. Mr. Wilkie third, with good plants of *Lomaria gibba*, *Adiantum cuneatum*, and *Woodwardia radicans*, with immense fronds five feet in length. Mr. Carr also had a good collection, in which were fine plants of *Nephrolepis Davalioides*, and *Gleichenia hecistophylla*.

Good collections of British ferns were shown by Messrs. Ivery and Son, Dorking, Mr. Salter, Hammersmith, and Mr. Carr, the prizes being awarded in the order in which the names stand. Messrs. Ivery and Son's consisted of fine plants of *Athyrium Filix-fœmina Feildia*, *lanceifolium*, *A. F.-f. formosa cristatum*, a beautifully-crested variety; *A. F.-f. Grantia*, *A. F.-f. plumosum*, *A. F.-f. pulcherrimum*, *A. F.-f. Veronia*, *A. F.-f. Victoria*, *Lastrea Filix-mas grandiceps*, *Osmunda regalis cristata*,

Polystichum angulare cristatum, and *P. angulare proliferum* Wollastoni. Mr. Salter's collection contained a fine plant of the beautiful *Adiantum pedatum*, *Athyrium Filix-fœmina crispum*, *Scelopendrium crispum*, *Asplenium angustifolium*, *A. montanum*, *Polypodium dryopteris*, *Osmunda regalis rubra*, *O. interrupta*, *O. Claytoniana*, and *O. spectabilis*. Mr. Carr, amongst others, had especially good *Trichomanes radicans* and *Adiantum capillus-veneris*; and Mr. Smith, gardener to C. Walton, Esq., East Acton, had a grand plant of the last-mentioned fern.

Pelargoniums, in the various sections of Shows, Fancies, and Zonals, were shown in capital condition. In the latter class Mr. Catlin first, with fine plants, trained watch-glass fashion, four or five feet across, and beautifully flowered. The kinds were Eugenie Mezard, Clipper, Excellent, Scarlet Globe, Monsieur Rendatler, Madame Vaucher. In the trade class Mr. Fraser, Lea Bridge, first, with beautifully-grown plants of Leonidas, Julius Cæsar, Rose Rendatler, Louise Veillot, Clipper, and Eugenie Mezard. Of those belonging to the show section, grand collections came from Mr. John Fraser, Lea Bridge, Mr. C. Turner, and Messrs. Dobson and Son in the trade classes; and Mr. Nye, gardener to E. Foster, Esq., and Mr. Ward, gardener to F. G. Wilkins, Esq., Leyton, in the amateurs' classes. In the class for nine, open, Mr. Fraser first, with immense plants of Conqueror, Lord Clyde, Caractacus, Sanspareil, Dædemonia, Leander, Lilacina, Excelsior, and Ariel. Mr. Turner second, with a beautiful group scarcely inferior, comprising fine examples of John Hoyle, Mary Hoyle, Fairest of the Fair, Congress, Pericles, Fair Rosamond, and Exhibitor. Messrs. Dobson and Son third, with a well-flowered and beautifully-fresh collection, but rather smaller plants than the preceding: Favourite, Constance, Leotard, and Vanguard were especially deserving notice. In the trade class for six Mr. Fraser again first, with fine plants of Diana, Candidate, and Conflagration. Messrs. Dobson and Son contributed a collection in this class. Mr. Nye first amongst the amateurs, with magnificent plants of Miss Burdett Coutts, Conqueror, Empress Eugenie, Lord Chancellor, Fair Rosamond, and Dædemonia, closely followed by Mr. Ward with well-grown plants.

With six fancies in the trade class Mr. Fraser again first, with superb examples of Helen Beck, Lucy, Clara Novello, Arabella Goddard, Delicatum, and Roi des Fantaisies. Mr. Turner second, with fine plants of Tormentor, fine dark crimson; Neatness, Clytie, Anne Page, and Effie Deans. Messrs. Dobson and Son third; amongst this collection was a grand plant of Acme, one of the best of the dark varieties. In the amateurs' class for six, Mr. Ward, gardener to J. R. Ravenhill, Esq., Walthamstow, first, with superbly-finished plants of Multiflora, Mrs. Ford, Undine, Madame Sainton Dolby, and two others.

ROYAL HORTICULTURAL SOCIETY'S SPECIAL SHOW, JUNE 16.—This exhibition was principally devoted to the various classes of zonal pelargoniums, and a few special prizes were given by the President and several members of the council for stove and greenhouse plants. Immense collections of pelargoniums were contributed by the principal growers and raisers of these classes, such as Messrs. Carter and Co., High Holborn; Mr. C. Turner, Slough; Messrs. F. and A. Smith, Dulwich; Messrs. E. G. Henderson and Sons, St. John's Wood; Mr. Stevens, Ealing; and a host of others, both amateurs and trade growers. For best gold zonal not in commerce, Mr. Turner first, with *Mrs. Greive*, Mr. Stevens second, with *Achievement*, and Messrs. Carter third, with *Ethie Beale*; three grand and perfectly distinct kinds. The best three gold zonals not in commerce, Messrs. Carter and Co. first, with *Sir R. Napier*, *Mrs. Dumnett*, and *Prince of Wales*. Best three bronze zonals not in commerce, Messrs. Smith first, with *Sybil*, *Plutus*, and *Goldfinder*. Best three silver zonals not in commerce, Messrs. Smith first, with *Peri*, *Miss Burdett Coutts*, and *Banshee*. Six zonals of any class in commerce or not, Messrs. Carter first, with *Egyptian Queen*, *Ethie Beale*, *Edith Stuart*, *Sultana*, *Valide*, *Princess of Wales*, and *Dr. Livingston*. Best twelve zonals of any class in commerce or not, Mr. Turner first, with *Beauty of Guestwick*, *Beauty of Salthill*, *Sophia Dumaresque*, *Princess of Wales*, *Queen Victoria*, *Clara*, *Empress Eugenie*, *Mrs. Turner*, *Mlle. Christine Nilsson*, *Excellent*, and *Lady Cullum*. Messrs. Smith second, with *Sultan*, *L'Empereur*, *Plutus*, *Enchantress*, *Louisa Smith*, *Imperatrice Eugene*, *Coronet*, *Miss Burdett Coutts*, *Bullion*, *Exquisite*, *Sunray*, and *Banshee*. Messrs. E. G. Henderson and Son exhibited a good collection in this class, but were disqualified through having two plants of one kind. Amongst others were *Italia Unita*, *Glen Eyre Beauty*, *Humming Bird*, *Lady Cullum*, *Silver Cloud*, *Dr. Palethorp*, *Sophia Cusack*, *Edwina Fitzpatrick*,

and Sophia Dumaresque. Silver zonal not in commerce, first, Messrs. F. and C. Lee, with *Mrs. John Clutton*. Best bronze zonal not in commerce, Messrs. Smith first, with *Criterion*. Best golden leaf not in commerce, Downie, Laird, and Laing first, with *Golden Emperor*. Best silver variegated not in commerce, Mr. Turner first, with *May Queen*. Besides the above, there were several hundred kinds of various degrees of merit, but we have named the best and most distinct only.

ROYAL BOTANIC SOCIETY.—The second exhibition of this Society was held June 17 and 18, and was a brilliant affair. Besides grand groups of stove and greenhouse plants, ericas, orchids, ferns, and immense quantities of fruit, there were several fine collections of cut roses, pinks, and pansies. With Pansies Messrs. Downie, Laird, and Laing, Stanstead Park Nursery, first for thirty-six, with grand blooms of Princess of Prussia, Mary Lamb, Francis Low, Miss H. Minto, Rev. H. Dombrain, General Lee, Jessie Laird, Invincible, John Downie, Princess of Wales, Eclat, Chancellor, Countess of Rosslyn, Yellow Queen, Sir James Graham, Alice Downie, Defoe, Lady Lucy Dundas, Miss Ramsey, Miss Muir, Gem, Lavina, Emily Lyle, George Wilson, Village Maid, Arab, Allan Ramsey, Cupid, Czar, A. Smith, Attraction, Margood. Mr. Turner's first prize collection of twenty-four Pinks contained the following first-class kinds:—Rev. George Jeans, Bertram, John Ball, Exhibitor, Lord Herbert, Marion, Formosa, President, Beauty of Bath, Mary Ann, Device, Elcho, Constance, Alma, Minnie, Invincible, Excelsior, Goliath, Attraction, Dr. Maclean, and Blondin. There were several other collections, but were made up chiefly with the kinds as enumerated above. The names of the exhibitors, and the positions which the collections occupied, is a sufficient guarantee that better selections could not be had than those we have named.

TO CORRESPONDENTS.

WANT OF COLOUR IN GRAPES.—*Agnès*.—Sometimes this can be accounted for through the border in which the vines are growing being too wet and cold. But over-cropping is the most prolific cause of the want of colour in grapes. Amateurs, and many professionals too, are so anxious to get all they can from the vines, and leave more bunches than the vine is able to support properly; and the consequence of this is, the berries are deficient in colour, and they get a large quantity of inferior, foxy-coloured grapes, instead of a medium quantity of good, well-coloured bunches. Some cultivators labour under the impression that they get a greater weight by leaving a large number of bunches on. It is often erroneous, for there is not much difference between having one bunch at three pounds, and three at one pound each, with the exception of the berries in the first instance being jet-black and the others red. Grapes colour best when exposed to plenty of light; so that if your grapes are not yet quite ripe, and the foliage is trained so that it forms a complete canopy over the roof, and through which it is next to impossible for the light to penetrate, you may, perhaps, aid them by turning out the laterals, and judiciously removing some of the foliage. Do not do the latter indiscriminately, or you will do more harm than good.

GLOBE ARTICHOKE.—*E. B. S.*—You can keep these fresh for some time after cutting, if you stick them in moist sand in a cool cellar or outhouse. Cut them with a good length of stem, and then you can cut about an inch off every third day, and keep the sand fresh. It will take up the moisture better than when it is either dried up or partially decomposed through being in the wet sand.

FUCHSIAS FOR EXHIBITION.—*O. P. Q.*—Water your plants with guano-water, made in the proportion of half an ounce of guano to a gallon of water, and stop to within six weeks of the time they are wanted to be in flower. If the plants are young and particularly vigorous, the stopping process should be discontinued two months beforehand. Your best remedy for keeping the red spider down is to keep the plants well syringed. The cause of the flower-buds dropping off before they expand can be attributed to the atmosphere being too dry, or through a too liberal or not sufficient supply of water at the roots. Examine your plants, and if they are too dry, give more water, and if too wet, give less than they have been receiving.

VALLOTA PURPUREA.—*E.*—This beautiful lily will grow well out of doors through the summer. We make a rule of placing our plants out of doors from as early in the spring as the danger from frost will permit. Place them in a partially shaded position, and let them remain there until they begin to throw up the flower-spikes. You will find your plant do better treated this way than stived up indoors all the summer.

CERASTIUM EDGING.—*Ibid.*—This can be easily kept in its place if cut back with a knife, or clipped with a pair of shears; either way will do. The short time this takes to do is far better than letting it grow wild, and mixing with the other plants.

MELONS RIPENING.—*Amateur Grower.*—You are wrong in supposing there to be such a great difficulty in distinguishing a melon when ripe. Nearly all the melons change to various shades of yellow—some brighter than the others, according to the kinds; and all emit a grateful odour as soon as they begin to change. The commencement of the footstalk beginning to part from the fruit is another sign of approaching maturity. No melon should be left on the plant until it is dead ripe. The flavour gets flat and dead, and loses its piquancy. Melons ought to be cut a couple of days before they are thoroughly ripe, and kept in a cool, dry, airy place, until they are wanted for table. Some little practice is necessary to find out the right moment for cutting, more especially as most kinds vary in showing symptoms of ripening. You must watch them attentively, and if you bring an ordinary amount of common sense to bear upon the subject, you will soon be able to judge for yourself. But do not do the same as we knew a gardener, who was occupying a good position, with half a dozen men under him, did—cut a slice out of the fruit to see whether it is ripe, and fit it back in its place, and then examine it every morning until it was fit to eat! Possibly this might be supposed to be a flight of fancy, but it is nothing of the kind, for we can assure you that it is a positive fact.

MIGNONETTE SEED.—*Amicus* will experience no difficulty in saving mignonette if he cuts the flower-spikes directly the seed-pods towards the bottom of the spike begin to ripen, and lays them on a piece of newspaper, and places it on the greenhouse shelf until thoroughly ripe. The chances are that, if he leaves it until the pods are quite ripe before he gathers it, he will lose three parts of the best seed. These remarks are equally applicable to the delphinium seed.

CAMELLIAS OUT OF DOORS.—*S. S.*—These require no other attention now but to keep them properly watered. Many failures in the way of the buds dropping by and by can be traced to want of attention now. Some people set them out of doors, and fancy they can take care of themselves. Keep them properly watered now, and you will not have any cause to fear that the buds will drop. The best place to keep these plants when out of doors is on the north side of a wall, where they get a glimpse of the sun morning and evening, but are shaded through the middle of the day.

EARWIG TRAPS.—*Henry.*—It is entirely your own fault if you allow these pests to spoil your wall-fruit. They are easily destroyed. We catch them with ripe bean-stalks, cut up into six-inch lengths, and stuck between the wall and branches to keep them in their place. The earwigs congregate in these through the day, when we go along, and blow them into a pail of water.

COCOA-NUT FIBRE DUST.—*J. J.*—This material can be mixed with almost any soil with advantage if used in small quantities. It keeps the soil open, and assists the free development of the roots. It has none of the nutritive qualities of manure.

ABUTILON PROPAGATING.—*A. B. S.*—Cuttings of the young wood, taken off just as it begins to get firm, inserted in light sandy soil, and kept close for a time, will root freely.

INARCHING VINES.—*E. A. W.* is anxious to know whether any harm would occur by inarching a white vine upon a black one, a Sweetwater upon a Muscat, and *vice versa*. We do not see that inarching would do any harm, provided a judicious selection of stock and scion is made, which is not likely to be the case if a Sweetwater is inarched upon a Muscat, for the Muscats are too tender for the purpose, and generally do best in cold damp localities when grafted or inarched upon free-growing black kinds, such as Black Hamburgh, Trebbiano, and Lady Downes. The black ones should not be inarched upon the Muscats when black grapes are required; it would be better to remove the muscats and plant black varieties in their place.



ROSE.—MISS INGRAM.

THE FLORAL WORLD

AND

GARDEN GUIDE.

AUGUST, 1868.

ROSES IN 1868.



EVERY rose has its season, and every season has its character in respect of roses, and there is as much entertainment for the lover of roses in observing the broad generalities of climatal influence as in minutely comparing and criticising the characters of individual flowers. Various as have been the features of past seasons in which we have reported on the behaviour of roses, we have never before had to record the experiences of a season like the present, in which the heat and drought of the oriental desert has been seasoned with mosquitoes from the West Indies, and fires like those of the American prairies. The winter of 1867-68 had all the characteristics of a dry spring. The temperature was high, frost occurred rarely, the rainfall in the London district was about one and a half inches less than the average, and in western parts the deficiency was greater. The months of April and May were not favourable to roses, the temperature was too high, and there was not sufficient rain. June was hot, with little rain, and the bloom of the rose was beyond precedent early, and, generally speaking, the flowers were thin. Special exhibitions of roses were all too late to catch the flowers, but as the Crystal Palace rose show was the first, so it proved to be the best; and even on the 20th of June, when that display took place, many experienced exhibitors made but a sorry figure, for their flowers were on the wane, and the best they could cut scarcely kept together long enough to pass the ordeal of the preliminary judging. The Royal Horticultural Society's rose show, which immediately succeeded, was almost a failure, while the meetings at Birmingham, Stamford, and Hereford were in many respects deficient of the attractions by which they have been characterized in former years. Generally speaking, the successes of exhibitors have been in the direct ratio of their advantages in respect of soil. The deep, heavy, nutritious loam of Cheshunt enabled Messrs. Paul and Son to take the lead in large collections, in almost every case in which they competed; and even at the Leicester meeting, on the 16th of July, they

but we know nothing of its history. It was shown by Mr. Cant at the Crystal Palace; it is a good rose.

Madame Noman.—If this is not the best rose sent out last autumn, it will be hard work to find a flower to place before it. Very strange to say, it reminds us of the pretty Maiden's Blush, and it may be fairly described as a sublime edition of that favourite of the cottage garden.

Miss Annie Wood.—A large imbricated flower, of a fine clear red; very distinct indeed.

Madame Rival.—Large, full, satiny rose; pleasing, but questionable if first-rate.

Horace Vernet.—Large and full and fine, heavy crimson with purple shades; likely to be thin on poor soils and in hot seasons.

Thurin.—Very rich rose-colour; a bouncing bonny rose.

Charles Verdier.—Large and commanding, and the right sort in colour to take a good place, being light silky rose. If you pay a guinea for a plant of Charles Verdier, you will have value for your money.

Mrs. G. Paul.—Another of the charming rose-coloured roses, which, as a rule, are the best-formed of all. This is large and round, with beautiful arrangement of petals, colour shaded rose.

Gloire de Montplaisir.—A good red rose, but many old ones like it, and doubtless as good.

Madame Marie Girodde.—A grand rose of the desirable rose-colour, and quite equal in form to the best of the class; it is imbricated; large, stout petals; very fine.

Paul Verdier.—Not a good rose to cut, being small; must be seen on the tree, and then proves to be A 1 for the garden. Colour fresh pinkish rose.

Madame Margottin.—A gem of gems among the teas, when you catch it right; and, like Boule d'Or, Canary, and a pretty little group appreciated by those who really understand roses, and by none else, so we do not recommend it to beginners.

Madame Pulliat.—A nice globular flower, of a deep rose colour. It may prove to be good, but at present doubtful.

Comtesse de Turenne.—One of E. Verdier's best; the flowers are large and imbricated; colour pale pinky flesh, brightening to rosy pink in the centre; a glorious garden rose.

Madame Grondier.—Globular and neat, rose tinged with salmon.

Paul Verdier.—A very neatly formed globular flower, of a bright carmine colour.

Madeline Nonin.—A pretty rosy flower, good perhaps.

Monsieur Furtado.—A glorious tea rose, of a clear sulphur colour; buy it if you have six other teas only.

Felix Genero.—A good rose of its class, in which there are none perfect. Large, tolerably good shape, colour violet-rose. Blooms freely; a good garden rose.

Monsieur Plaisançon.—Medium size, globular, scarcely full enough, colour deep carmine.

Ville de Lyon.—A middling rosy flower.

Marie Baumann.—A noble recurved flower, of a dazzling light crimson colour; splendid.

CULTIVATION OF THE CAULIFLOWER.

BY MR. JAMES BARNES, OF BICTON.



TAKING gardens generally, I find that this princely vegetable is really not much grown. For years and years, travelling hither and thither, how rarely do I see cauliflowers doing any good except in the well-kept gardens of the nobility and gentry, and in the productive grounds of market growers. I want to see cauliflowers in plenty in the garden of the farmer, the tradesman, the artizan, the cottager. Why not? In these western parts, a very good substitute for the cauliflower is found in the hardy kinds of white broccoli, which are pretty extensively grown, and are not to be despised. Indeed, in this locality they are in use from January till May, and are commonly called cauliflowers, though between the best broccoli and the real cauliflower there is considerable difference; and there can be no thorough substitute for the beautiful curd-like, tempting, delicate vegetable which a thorough gardener will recognize as a cauliflower fit for a gentleman's table. Yet really, to speak the plain truth, a good cauliflower may be grown on any ground that will produce a good cabbage; it wants nothing that the most humble cultivator cannot provide. I own it wants care; so do savory cabbages, and other coarse things that are useful in their way, and that abound everywhere.

There is just this difficulty at starting, that the cauliflower is rather tender in constitution. Well, it is not so tender but that a little protection is sufficient for it. Now this little protection is the first thing to think of in preparing to grow cauliflowers; all the rest is easy enough. We have choice through winter of the use of hand-glasses, pits, frames, cool houses, perhaps even ground vineries. I have no doubt they would answer well to protect narrow beds of cauliflowers planted in such a way that the vineries could be put down over them before winter sets in. But I shall suppose a person to have none of these helps, and yet anxious to grow cauliflowers. Well, if he lives in a good warm climate, a warm sheltered border may suffice, as may be seen occasionally in the west of England; but if this will not do, there is the cheap and handy alternative of a turf pit, which costs almost nothing to make, and when done with, the turf walls may be chopped up to grow melons, cucumbers, or cinerarias, or pelargoniums in—the stuff, in fact, being first-rate for almost any purpose. To make a turf pit requires the turf to be piled up so as to form a wall eighteen inches or two feet thick, sloping up gently, and with posts at the corners to which to attach some common narrow planking for a plate, with a slip on each side to guide the light; and here we come to difficulty No. 1, for the cost of a light may be too much for the cultivator, or if the cultivation is to be carried out on a large scale even in a well-kept garden, something cheaper than glass and carpentry may be required. Well, then, I will choose for my pit an old shutter, or a flat cover

made of rough planks, braced with cross-pieces; this I will put on when the weather is frosty, and take off when the weather is mild, and the plants will be sure of air to keep them strong and sturdy. Or if wood is not at hand, and a cottager has a turn for a little homely work, let him thatch a few hurdles with reed or straw, and he will be pretty well off, and may grow as fine cauliflowers as the nobleman's gardener who has acres of glass. Even if the district does not supply turf for the walls, he need not be beaten; he can surely get a few rough boards to form the sides, and then bank it up all round outside with puddled clay and chopped straw, or with a bank of fern or straw in frosty weather only.

Let us now see about the sowing of the seed. The best time for small gardens in these parts is from the 18th to the 24th of September, but in cold climates a month earlier is not too soon. Therefore it is that I bring the subject forward now, for in the northern parts of our island the 20th of August is none too soon for sowing cauliflower seed. In great gardens several sowings are made, and fine heads are obtained from seed sown in heat in February and March, and brought forward with care until they are large enough to be planted out. Supposing a few rows only to be required in a tradesman's or cottager's garden, a thimbleful of seed will be enough, and the border should be sheltered and the soil nicely broken up and pulverized, so that the little plants will have a healthy and free growth. They should be pricked out a few inches apart as soon as they can be handled, in order to keep them short and sturdy. If the weather continues mild and favourable to growth, lift them a second time, and replant them, taking care not to break the roots or leaves in so doing. It is very important to prevent them getting "too gay," as we call it, at that season; that is, we want short healthy plants, not long, large-leaved, light green succulent plants, for these do not go through the winter so well as those that are stubby. It has been well said that severe checks are the ruin of celery, and I must say that severe checks are the ruin of cauliflowers. Let them grow rank in autumn, get a little frost in winter, and then let the planting out in spring be followed by dry weather, and the result is they "button"—that is, they form useless little heads of flower before the proper time, and then terminate their career disgracefully. About the first or second week in November, get them into their winter quarters, whatever such quarters may consist of, and respecting which I have no doubt said enough. Keep them healthy and hardy; plenty of air except in frosty weather, and even then, in the middle of the day, air ought to be given if the sun shines, and there is no danger of getting them frozen. Remove dead leaves, and stir the ground between them, and they will do well till the time comes for planting out. I have seen many fine batches of cauliflower plants wintered safely on steep sloping banks having a north aspect, short evergreen boughs being stuck in when frost was likely to occur, to break the force of the wind. In a south aspect they do not get on so well, for the sun starts them into growth too early, and they are in the end very much cut about by frost.

In these western parts we begin to plant out cauliflowers in February, but I know there are many places where it is not safe to plant them out till March or April, and even then they sometimes get a nip of frost that kills a great many. But it is a good rule to get them out as early as possible in order that they may root freely and grow to some size before flowering, for there must be a plant before there can be a flower. And another matter of importance is that there must be plenty of manure used—not in a heap here, and then a gap with none, but regularly distributed over the ground, and vigorously dug in and mixed with the soil. I have known cottagers, who found it difficult to obtain manure in plenty, after they have dug the ground, mark out the rows, and then draw drills with the hoe, and fill those drills with the horse droppings that their children bring home from the roads. In these drills they insert the plants, tread them in, and give them a drop of water each; they start away well, and generally produce heads of good size, but not equal to those that are grown in well-manured ground.

In the gardens here, cauliflowers are cut nine or ten months of the year, and they are consequently always in hand in some stage or other. We sow for our early spring crop in October and November, on gentle heat, close to clean glass. The seedlings are pricked out into small pots, and plunged in heat again close to the glass. Others are pricked out in beds of light earth, in frames, always close to the glass. All these are grown on with as little check as possible, and come in for table in April and May. We sow again in January, and these are pricked into boxes, and nursed along in peach-houses and late vineries, and by the middle of March are large plants, ready to harden off and get out of doors. Planting goes on at nearly all seasons; we select warm south borders, sunny ridges, and banks looking south from February to April, after which we plant on cold level ground and shady slopes till August. Thus we gain warmth as we can, or avoid it when it might cause the plants to button.

As for sorts, I am no advocate for the adoption of all that have names. The *Frogmore Early Forcing* will be useful in establishments where pot and box culture are followed up. For successions, *Early London*, *Erfurt*, *Stadtholder*, and *Lenormands* will be sufficient for anybody, for the true secret of succession is *management*, and with this remark I shall close this short paper.

DEATH OF MR. N. B. WARD.—This eminent botanist ought not to pass from amongst us without some tribute to the good service he rendered to mankind in the invention of his closely-glazed or “Wardian” cases for the growth of plants. By the introduction of these cases into the dwellings of all classes, Mr. Ward performed noble service to diffuse the love of nature, which was his ruling passion; and by the transport through their agency of valuable plants, as the tea and chinchona into India, he did the state not a little service. Mr. Ward was a Fellow of the Royal and Linnæan Societies, and his portrait, painted by subscription, is in the meeting-room of the Linnæan.

KALOSANTHUS CULTURE.



SHALL not write a long introduction apologizing for bringing this subject forward; an apology for doing so would be equivalent to my confessing that these plants have not sufficient merits of their own to entitle them to be generally grown, and that I only brought them forward because I had a particular fancy for them. I confess to a certain amount of partiality for them, but that is founded on their great beauty and general usefulness. We have nothing to compare with them for July work, excepting the zonal pelargoniums, and to say there's nothing to decorate the conservatory with after the spring flowers are gone, excepting a few annuals and fuchsias, is nothing less than humbug. With the range of about twenty varieties of Kalosanthus, the conservatory can be made as brilliant at this moment as it was in May, when the pelargoniums were at their best, provided sufficient time could be spared to attend to them, and space to grow them in. I grant readily that it is not desirable to fill a house with them, to the exclusion of everything else. They are too stiff and formal in their habit, and the colours are too much alike for that. But two or three dozen large, well-grown plants would be grand for lighting up a house full of ferns and other ornamental foliage plants. These plants ought to be grown by scores, where they can only be numbered by units now. I confess that to grow them requires time and space, but that's no argument against growing them. Everything requires that, and to get over the difficulty, the simplest way to manage is to grow a few less of something else, say half a dozen pelargoniums, half a dozen fuchsias, and the same number of a few other subjects, and space is provided at once for a few dozens of these without increasing the labour, as there is no more time or trouble attendant upon their culture than there is of those subjects I have named.

The Kalosanthus, or Crassula, as it was formerly called, belongs to the houseleek family, and is therefore a succulent, and requires a somewhat different treatment to ordinary soft-wooded plants, though it is by no means difficult to grow well. In the first place the propagation is effected by taking off the tops of the shoots that have not flowered as soon as the beauty of the flowers are past; this is the best time of the whole year, for the wood is by then tolerably ripe and firm, and not likely to decay, which is the case if the tops are taken off early in the spring, when the plant is in full growth, and the shoots soft and sappy. Any light sandy soil will do for filling the pots, in which the cuttings are to be inserted, and a layer of dry silver sand on the surface. This runs down into the hole made for the reception of the cutting, and forms a base for the cuttings to rest upon. The cuttings root with greater freedom this way than they would do if they were surrounded by soil only. After the cuttings are inserted, I place the pots in a position where they are exposed to the full light and air, for no close coddling must be attempted, or the cuttings will very soon go off, especially if accom-

panied by plenty of moisture. Supposing the cuttings to be placed on a shelf in the greenhouse, fully exposed to the sun, a mat might be thrown over the glass to break the full force of its rays, and prevent them from being burnt up before they have formed roots. The branches can also be cut up into lengths and rooted, if a number of plants are wanted, and there are only a few growing points to be had, but the latter are the best, if they are obtainable. After they are rooted, they must be potted off into small pots, in which they must remain through the winter. In the spring shift into pots two sizes larger, and give them a little encouragement for a few weeks by placing them in a growing temperature, about ten degrees higher than that of the cold greenhouse, directly the plants begin to make fresh roots into the new soil, nip the points off, and then when these pots are full of roots, and the plants require a second shift, they can be either potted on singly or into larger pots, or about three plants potted in one large one. I prefer the latter method, for a large plant can be had quicker, and with less trouble, than by growing them on singly. The plants should now have all the light and air possible, for upon the maturity of the wood depends, in a great measure, the quantity of bloom the following summer. The drainage of the pots should be perfect, and water applied rather liberally when the plants are growing freely, but sparingly during the time they are at rest through the winter; just sufficient to keep the foliage from shrivelling. From the first the side-shoots must be neatly tied out, to keep them in their places, and prevent their snapping off, which they are very liable to when shifting the plant about. Immediately the beauty of the flowers is gone, cut the plants down in a somewhat similar manner to the way pelargoniums are cut back after flowering. Give the plants a little extra warmth to induce them to break quickly, and when the young shoots are about an inch in length, take the plants out of the pots, remove a portion of the old soil, and repot in a clean pot, the same size as that from which it was taken. No exact rule can be laid down as to how low each shoot is to be cut down, but they should be cut back to where the wood is firm, and a certain uniformity preserved, so when the young growths progress and come into flower, the plant is a nice shape, which is impracticable if the old wood is pruned irregularly. A close soil for growing these plants in must be avoided, it should consist of fibrous loam, mixed with a good proportion of leaf-mould and sand, and a liberal sprinkling of broken crocks. With the selection of half-a-dozen first-rate kinds, I shall conclude, earnestly advising my readers to deal justly by these plants, and they will have no more necessity to raise the cry of there being nothing to decorate the conservatory with through July. The following are about the best—at all events they are good and distinct, and I can recommend them with the greatest degree of confidence:—*K. Boieldieu*, bright carmine; *K. coccinea superba*, fine deep scarlet; *K. Madame Desbordes Velmores*, fine rose; *K. Otto Deines*, rich velvety scarlet; *K. Sultan Achmet*, fine dark red.



PALMS FOR CLOSED CASES.

BY GEORGE GORDON.



AM not going to say much against ferns for this kind of work. I have too great a partiality for their beautifully green, feathery fronds to do that, and it would be a long time before any one would be able to persuade me not to grow them. I am not going to attempt anything of the kind with my readers. I have no desire to do so. Were I to, why, I should expect to be laughed at for my trouble. In growing ferns in closed cases, it often happens that their fronds turn yellow, and also mouldy, even with diligent attention from the cultivator, whose plant possessions probably consist entirely in the case and its contents. These misfortunes do not take place because the ferns require such an immense amount of skill to be brought to bear upon them, but simply because they are not understood. With the right kind of treatment, nothing is easier to grow; but then everybody does not know when the plants are too dry or too wet, or when they have not enough or too much water; and this tells upon the beautifully delicate fronds. For my own part, I have no desire to see them less delicate, for in this, in a certain measure, lies a great part of their charms. It is thus seen that ferns are delicately formed, and it is impossible, or, at all events, impracticable, to make every one who loves green things to thoroughly understand this. It is necessary that they should have something else quite as beautiful, and which is better able to stand the effects of rough usage; and for this there is nothing better than palms. The fronds of these are harder, and stouter in their texture, and consequently better able to stand neglect than ferns. For this purpose we must select dwarf and small-growing kinds, which at the same time will bear the temperature of an ordinary living-room. Many of the palms, though they enjoy and grow freely in a stove temperature, will thrive, but grow slower, in a much cooler one. As the size of the case must necessarily be limited, small and slow-growing kinds must be exclusively employed; and keeping this in view, I have made the following selection. A long list is not required, for a very large case is required to grow many.

To begin with a nice compact-growing kind, we cannot do better than fix upon *Chamædorea elegans*, a beautiful fan palm, that has all the qualifications necessary for our purpose. Next come the *Chamærops*, and from them we must select *C. humilis* and *C. Fortunei*. *Corypha australis*, in a young state, is especially beautiful; and another good one, not to be dispensed with, is *Phoenix dactylifera*, *P. farinifera* and *P. sylvestris* are both good kinds. These grow to almost any height with plenty of heat, but in a cool temperature grow very slowly. *Sabal Adansonii* is a good kind; and the same may be said of *Rhapis flabelliformis*, a small, upright-growing plant, with small fronds. *Seaforthia elegans* produces a charming effect, with its long pinnate fronds, but must be kept pot-bound. *Thrinax parviflora* is both good and cheap, and one of the prettiest of the fan palms;

T. tunicata is also good; but the prettiest-growing palm for cases is the beautiful *Leopoldiana pulchra*. I am not sufficiently acquainted with it yet, to speak positively about its doing in a case, but it is so extremely beautiful, that notwithstanding its being rather expensive, I should advise its having a fair trial. There are several others that are adapted for growing in cases, but to name them would only confuse beginners, and give them the trouble of selecting. I have named the best, and it would be better to have two of one first-rate kind than to have one bad sort and one good one.

I shall not go into the cultural treatment at any length, for my instructions upon this point are sufficiently clear in the paper upon the general treatment of these plants, which appeared a few months back. I shall content myself with offering a few remarks which directly bear upon growing them in cases. It is necessary to have a little air on at all times, excepting when the room in which the case is placed is being swept and dusted. To have air on whilst this is being done simply serves the purpose of the plants getting smothered with dust, and requiring the foliage to be washed over to cleanse it. The foliage gets dusty plenty soon enough, without this being done, therefore I recommend the case to be closed up, and made perfectly dust-proof. During hot weather the plants will require more air than in cold and dull weather, just the same as plants in the greenhouse. The largest size pot admissible in the case is a five-inch, therefore the plants must be kept to that. When they outgrow it, shift them into a larger size, and remove to the sitting-room window or greenhouse, and replace with a smaller plant. Plunge the pots in cocoa-fibre refuse, to hide their unsightly appearance. Too much importance cannot be attached to keeping the foliage clean. When covered with dust, the plants not only have a dirty and disreputable appearance, but it is highly injurious to their health. They must have water when they require it, and not oftener, for a too liberal supply will destroy the roots. When the soil in the pots feels dry, give sufficient to moisten it right through, and leave them alone until they get dry again.

In conclusion, I must not forget to mention a plan which my in-door gardener adopts for making her case as beautiful as possible. She has some zinc trays or boxes made, three inches wide, four at the back, and one in front, a drainage of small crocks is placed over the bottom, and then filled up with light sandy soil; and the sloping surface, after being made thoroughly firm, planted with *Lycopodium denticulata*. With ordinary care in watering, so as not to wash the soil out of its place, this soon makes a beautiful edging. When it gets shabby, nothing farther is necessary beyond trimming it off, and sprinkling the surface with sand, when it will soon break up as fresh and green as ever. The length of the trays is, of course, in proportion to the size of the case, and are made portable, to lift in and out when required.

GROWING PANSIES IN POTS.

BY J. JAMES,

Head Gardener to W. F. Watson, Esq., Redlees, Isleworth.



HIS beautiful flower is so easy to grow in pots that I cannot help wondering why more of our amateurs do not take them in hand. Without doubt they would be rewarded with a delightful display of floral beauty in the spring. The pansy is not only superior in point of beauty to many plants that are more popular; but far less trouble is necessary in preserving it through the winter, if a cold frame is the only structure the amateur has to keep his plants in. I will detail my way of dealing with these plants, and by which I have been very successful in growing them, and I feel assured that, if the rules that I shall lay down are strictly observed, it will be the grower's own fault if he does not succeed to his satisfaction. The first thing to be thought about is getting a stock of the best varieties. I will add a list of some of the best of my stock, as a guide to the beginner in these matters. As I said before, the first thing to be thought about is getting a stock; there are several ways of managing this. The proper way is to take as much money in your hand as you can afford, and go to a respectable nurseryman, and either leave the selection in his hands, or hand in the list which will be found at the foot of these remarks. For my own part, if I did not want any particular kind, I would sooner leave the selection in the hands of the nurseryman; generally speaking, plants of every description can be bought much cheaper this way than by picking them out by the purchaser. It often happens that when a certain list is sent in, several of the varieties named therein may be sold out, or a failure may have happened in propagating them; the consequence of this is the nurseryman has to go to an immense amount of trouble and expense to make up the list, and consequently is unable to make any reduction from the catalogue price. Nine or twelve shillings per dozen will purchase a good selection at a nursery in which they are made a speciality. Another good way—good because cheap—is to go to a friend and beg a few cuttings of the best of his stock.

Supposing the latter method is adopted, I will say a few words upon this branch of the subject. Besides, it is desirable to know how to propagate these plants, for it will be necessary to strike a fresh stock every year, for the young plants are more vigorous, and the flowers are finer than those from old plants. It is getting rather late to strike plants intended for pots to bloom next spring; but if no time is lost, good plants can be grown even now. As a rule, it is best to begin some time in June, and have the whole of the cuttings by the end of that month. I shall suppose that you have a cold frame, or a hand-light that can be spared. Well, make a bed about nine inches in thickness in either of these, for the purpose of receiving the cuttings. It should be composed of about an equal proportion of fibrous loam and leaf-mould, and a good sprinkling of sand

mixed therewith, and a layer of the latter over the surface. Silver sand is certainly the best, but good clean river sand, free from mud, will do very well. After the bed is ready, and has had a fair watering to settle the soil, dibble the cuttings in rows three inches apart, and about one inch from each other in the rows. This done, give the bed another sprinkle through a fine rose and shut up, shading the cuttings in bright weather; attend to them with water when necessary, and give air as soon as they are rooted, finally removing the lights altogether a few days before planting out into a bed in the open air, which must be done directly the cuttings are nicely rooted. Dig the bed deep and give it a good dressing of rotten manure, select a position for it which is moderately cool, and partially shaded through the hottest part of the day; give plenty of water should the weather continue dry after the plants are turned out. Prepare a quantity of soil composed of two parts turfy loam, and one part decayed cow-dung and leaf-mould in equal quantities; this being done, prepare a sufficient quantity of three-inch pots, by making them thoroughly clean and placing several pieces of small crocks in the bottom, and take up the plants and pot them in these pots about the end of September, and remove them to a cold frame, where they must remain through the winter months, standing on a layer of coal ashes to prevent the worms getting into the pots. They ought not to be more than nine inches from the glass; keep the frame rather close for a few days after they are newly potted, to assist their recovery as quickly as possible; after this give plenty of air at all times, excepting during sharp frosty weather, when it is as well to throw a mat, or a little dry litter, over the frame, to afford a little protection. In February shift into six-inch pots, and then after they are nicely rooted in the new soil, remove the lights altogether in fine weather, and tilt them back and front in wet weather. Though the pansy requires an abundance of air, it must not be exposed to the drenching of heavy rains. Water must be cautiously administered throughout the winter, increasing it as the spring advances, and the plants get into more active growth. Avoid manure water and trust to pure rain water, then there will be very little fear of losing any of them. Full half the plants that die are killed through the too liberal application of liquid manure. When in bloom shade slightly, to keep the flowers in good condition as long as possible; and after observing that it is as well to make the soil when potting moderately firm, without being made too hard, nothing remains for me to say beyond giving my selection, which the grower can add to when he is better acquainted with pansy growing; for the present he cannot do better than select the following:—

SELS.—*Snowball, Golden Queen, Othello, Masterpiece, Yellow Queen.*

YELLOW GROUNDS.—*Allan Ramsay, De Foe, Emily Lyle, Francis Low, Gem, George Wilson, J. B. Downie, John Inglis, Mrs. Downie, Norma, Prince of Wales, William Austin.*

WHITE GROUNDS.—*Attraction, Countess of Rosslyn, Elvina, Invincible, Jessie Laird, Lady Lucy Dundas, Mary Lamb, Miss E. Cochran, Miss Williamson, Mrs. Moffat, Queen, and Village Maid.*

NEW BEDDERS, AND HOW TO PROPAGATE THEM.

BY JOHN WALSH.



T requires rather nice discrimination to fix upon the best of the new bedders, when offered for the first time, without having to pay a lot of money for stuff not worth the expense of carriage home. The nurserymen do not deserve such sound ratings as some people feel inclined to give them, when they have proved a thing to be utterly useless for which they probably paid a long price. It is simply impossible for any of the nurserymen to test the qualities of every plant they send out by growing it several years in succession under a variety of circumstances. I will not enter into the vexations and disappointments I have experienced in dealing with new bedding plants, but will offer a few observations upon a few that are first-rate. Some of these have been before the public for several years, and are now obtainable at a cheap rate; which is, I expect, a matter of some little importance to many thousands of those who trust to the *FLORAL WORLD* for guidance in matters appertaining to garden affairs.

The first plant of this class that we come to is the *Pyrethrum Golden Feather*, one of the best golden-foliaged bedders we have, for edging and forming marginal lines; and it has the additional qualification of being perfectly hardy. This is a grand consideration with many amateurs who have only a small greenhouse to store the whole of their plants in through the winter, as it will give space for several hundred plants of other kinds. It has hitherto kept up its price pretty well on account of its being slow to increase; and it has but recently been found to reproduce itself true from seed. The best course, therefore, is to obtain a packet of seed at once, and sow it in a box or pan, full of any light rich soil, and set it in a shady position until the young plants are nicely up. A cold frame is a capital place, if the room can be spared. When they are strong enough to handle, pot them singly in small pots, and place in cold frame; or they may be pricked out in a bed of soil in the frame, at about the distance of three inches apart; or they may be planted out in the open border, in a warm and sheltered corner, where they can be protected in very sharp weather with a sprinkling of dry litter. They can be lifted from this border, and transposed to their summer quarters in the month of April. Seed sown in the spring would require heat to get it up, and a generous warmth to grow the plants along afterwards—thus giving the same amount of trouble as a stove plant, besides making the constitution of the plant nearly as tender, thus preventing it being put out so early as it otherwise would if sown now and treated as a hardy plant. To propagate by cuttings, deal with them in much the same manner as with verbenas and other ordinary bedding plants. Take the cuttings, and as early as they can conveniently be obtained in the autumn. Place them in a little warmth in the spring, to start them into growth, when the tops will soon make

nice little plants. To save seed, a few plants should be turned out in a clump in the kitchen-garden, for those in the beds ought to have the flower-stalks nipped out directly they make their appearance, or the effect will be spoilt. The common double white Pyrethrum makes fine beds, and is a capital substitute for white verbenas in the north, where the latter do but little good.

Messrs. E. G. Henderson and Son, St. John's Wood, did good service in introducing another first-rate golden bedder, namely, *Fuchsia Golden Fleece*. This will require shelter in much the same way as the other bedders. It is a grand thing for first and second rows, as it has a fine dwarf branching habit, of about six or nine inches in height. Amateurs and others who have a fair knowledge of propagating plants (and there are very few people that have anything at all to do with garden work that cannot manage to strike a fuchsia) will find it the cheapest plan to get a few plants at once. A stock of this, for bedding out in the spring, can then be secured without much expense. Supposing half-a-dozen were purchased now, almost any quantity could be struck for bedding out in spring, and there is this advantage—the true plants can be had stronger now; for the nurserymen are bound to force some things within an inch of their lives, to get up stock sufficient to meet the demand. A better time than the present cannot be chosen for getting in a stock of this. If the plants should be pot-bound when they come to hand, shift them at once into larger pots, using the ordinary fuchsia compost, which should consist of two parts good turfy loam and one part each of decayed manure and leaf-mould. After the roots begin to extend themselves into the fresh soil, if there are any side-shoots, take them off, as well as the tops, and insert in pots filled with loam and leaf-mould in equal proportions, and a liberal sprinkling of silver-sand, with a layer of the latter over the surface. Through the winter, keep the plants rather dry at the roots; and, about February or March, if the assistance of a little heat, such as is afforded by an early vinery, cucumber-house, or stove, can be had, place the old plants in it, and gradually increase the supply of water; and, as fast as the young shoots are made, take them off and insert them in pots as before. But as they will be much more tender and delicate, it will be well to cover the pots with bell-glasses, or place them under a handlight until they are rooted. Guard against keeping the glass over them too close, or very probably a large proportion will damp off. Pot off as fast as they root, and take a crop of cuttings of these directly they are grown sufficiently; but bear in mind that nothing will be gained by cutting the young plants up too much. If the soil is very poor where they are to be planted out, fork in a little rotten dung, for fuchsias do little good in poor, hungry soil.

I never had any very great partiality for *Lobelia Paxtoniana*. The colour is not sufficiently distinct, when seen from a distance. The large white eye blends with the ground colour, and gives the flowers a greyish blue colour that is anything but satisfactory when used as an edging plant next the grass. But we have some grand self-coloured varieties now amongst the new ones, or with but small

eyes that get lost as it were in the mass of colour. Of the varieties of *speciosa*, I shall put down E. G. Henderson and Son's *Indigo Blue* and *spectabilis*, as well deserving notice. The first has rather a large eye, but the ground colour is so deep and pure that we can afford to put up with the eye. The latter has more the colour of the old *speciosa*, but the flowers are much larger, and the habit of both kinds is very compact, and they are tremendous bloomers. It seems almost absurd to grow the old form when we compare the fine rich colour and compact habits of these with it. The best of the azure blues that I have seen, and I believe I have seen them all, is one called *Blue King*, for many years grown at the Crystal Palace. Mr. Bull is sending this out now. It has a very small eye, not perceptible at a distance. Though the colour is what is termed azure, it is very bright and clear, quite distinct from those which have a large proportion of indigo in the composition of the flowers. Another good one which Mr. Bull has is named *Painter*. This has a large proportion of white in the centre, but the colours do not run into each other, the markings being sharp and definite. Another good variety of the latter class is *Little Gem*, sent out by Messrs. Lawson and Son this last spring. The centre of the flower is pure white, with deep blue margin. *Trentham Blue*, sent out by Messrs. Veitch and Sons, Chelsea, is good, the habit being vigorous, thus insuring a continuous succession of bloom throughout the summer. The flowers large, and of a fine blue colour. This is said to be particularly hardy, and able to live in a cold frame through the winter. I am not able to say anything upon this point, for my experience of it does not extend through a winter yet. These are all good, and the selection is sufficiently large for the present. The white ones are by no means good. They are too weedy, and their appearance is weak and unsatisfactory. Messrs. Henderson and Son have some grand things amongst their new ones in the *Pumila* section, of which *Elegans* and *Turquoise* are about the best that are offered for sale at present. The former is rather deeper in colour than the latter, both being perfectly distinct. This section is invaluable for forming divisional lines, where a compact dwarf-growing plant is required. Some of the new kinds that I have seen in the possession of this firm have flowers larger in size than the above-mentioned, and one or two of the varieties have bright rose-coloured flowers. These are all easy enough to propagate, but the difficulty in dry seasons like this is to get cuttings, unless a little special care is taken with a few plants. A good plan will be to go round the beds, and select a few of the strongest plants, one here, and one a little further on, so that no gap is made, and then cut the flower-spikes off, and give them plenty of water to encourage the production of young growths. A few plants ought to be planted in a corner by themselves for the purpose of propagation, and then the flowers can be removed without making a gap in the flower-garden. I should recommend the immediate purchase of any new ones it is intended to propagate. The flowers should be removed, and the plants shifted into five or six inch pots, in rich soil. There will be no difficulty, by this plan, in getting an abundance of cuttings. Though scarcely within the province of

this paper, I must say that the whole of the *Lobelias* ought to have the soil made much richer in which they are to be planted than it generally is.

The *Viola* rage will be pretty well subsided by the end of this season. Everywhere that I have been, *Viola cornuta* is what may be correctly termed a failure. It was very good through a month of the early part of the season, and now that the other bedders are at their best, this is gone off; but for those who still retain a lingering fancy for them, the white variety, *V. cornuta alba*, offered by E. G. Henderson and Son, will be considered an acquisition. In size and shape of flower, and habit of growth, this is exactly like the blue kind, the only difference being in the colour of the flowers, which is pure white. Cuttings of this under a handlight, or in a cold frame, will root freely, and it will require plenty of manure in the beds to grow it well.

Tropæolums are amongst the most valuable plants we have for summer bedding, especially where the soil is naturally dry, and manure scarce, for they will thrive and flower well where scarcely anything else will live. There have been several grand additions made to this family this season. First and foremost on my list I shall place Messrs. F. and A. Smith's *Mrs. Treadwell*. It has a fine compact dwarf branching habit, neat dark green foliage, with rich orange-crimson flowers, which are about two inches in diameter, of fine substance and shape; one of the best that has been offered for a long time. *Crystal Palace Perfection*, of Messrs. Carter and Co., High Holborn, is also good; the flowers are abundantly produced, and of a bright orange-scarlet colour. Messrs. E. G. Henderson and Son's, *Star of Fire* deserves its name, for it is a fine dwarf grower, smothered with flowers of a brilliant orange-scarlet colour. The cuttings of these should be put in early, to enable them to get thoroughly rooted before winter. They require to be kept rather dry through the winter months, otherwise there is a danger of their damping off. Spring is the best time for propagating *Tropæolums*, but a few must be struck in the autumn, to work from.

So many new kinds of *Coleus* have been brought forward, that unless any one is well acquainted with them, it is a difficult matter to make a selection. For bedding purposes I shall put down *C. Bausei*, of Veitch; *Supreme*, of Bull; *Henderscotei*, of Henderson; and *Marshalli* and the *Golden Coleus*, *C. Telfordi aurea*, of Wimsett, as the most likely to be the very best of the whole lot. Several are as deeply coloured as the *Perilla Nankinensis*, and liked by some horticulturists for that reason. To my mind, this is not the colour we want in them for bedding, as we already have it in the *Perilla*, which is much hardier, and a stock can be got up with less trouble. We want the rich crimson colour of *C. Verschaffelti* to make effective bedders. *C. Veitchii* is good as a pot plant, but remarkably poor when planted out, though it grows freely enough. The *Coleus* can only be kept through the winter by those who have the advantage of a small stove, or something of that kind, where a little warmth is maintained. The great danger is in keeping them too wet. When they are at rest, only sufficient water should be applied

to keep them alive. Spring-struck plants are best; but the old plants to work from should be bought some time during the autumn, and the young plants rooted early enough to get strong and hardy before bedding-out time. Much may be said about the many new geraniums which have lately been brought forward, but I will leave that part of the subject in more able hands; for such hands are not far off from our readers, as I believe our Editor knows more about them than any other person living. I am afraid I have extended this paper already to too great a length, but I will add, that there are hundreds of hardy plants admirably adapted for bedding that we never think of employing for that purpose.

PREPARING ROSES TO BLOOM AT CHRISTMAS.

BY HENRY HOWLETT.



It is not enough for this luxurious generation in which we live to enjoy the gifts of Providence and the beauties of creation in their appointed course; but man, "who seeks out many inventions," must needs set Nature's rules at defiance, and reverse her laws, in order that he may force her to yield up her treasures at his bidding; and if we possess the skill, the leisure, and the means, surely it can be no vain or frivolous application of either to devote them to so harmless and pleasant an end as the production of a glowing bank of roses, at a season when

The trees, all spectral and still and white,
Stand up like ghosts in the failing light,
And fade and faint with the blinded day.

Yet if any of my readers for the first time in their lives determine that this very next winter they will treat the gentle "partner of their hopes and cares" with a grand display of roses in the drawing-room, let me just remind them that they must make up their minds to be very amiable and attentive to Dame Nature, from this day forward, as she will require no ordinary petting and coaxing to bring her into the desired frame of mind for yielding her treasures graciously. In other words, they must set about their preparations in earnest, and at once, and base them on proper principles. Then let us consider what essentials are required in this operation of producing a bank of roses from Christmas onward.

It is well known to practical gardeners that roses, or other trees whose natural time of flowering is summer, must, when required to yield their produce at the opposite season, undergo a course of training calculated to fit them for the change. And first, they must be old enough and strong enough to produce abundance of flowers. It would be useless wasting time and incurring expense upon plants that had not stamina to furnish the material for flowers, and it would be folly to attempt forcing at so early a period, unless suitable

plants are procured. They should be plants that have had pot culture for at least one year, and if slightly forced the previous spring, so much the better; indeed, this may almost be regarded as a *sine qua non*.

Supposing, then, that such plants are procured, this is a good time to begin their special training, but no time must be lost. They will now have completed their first growth, or nearly so, yet will not be so dormant, but that they will lay hold of the fresh soil when repotted, which must be done at once if they are pot-bound. Still a large shift should not be given, for *they do not force so readily unless the pot is pretty well filled with roots*. Endeavour to hit that mean between a pot filled with roots to starvation point, and the opposite extreme of a pot so large that it is impossible the trees can this season fill it. Indeed, the same sized pot as that out of which they are taken will often be found sufficiently large after a portion of the loose and exhausted soil has been *carefully* removed from the ball with a pointed stick; but if it is found that sufficient of the old soil cannot be removed without endangering the roots, to allow a moderate quantity of new, then a larger sized pot must be used, and be especially careful that the new soil finds its way into and fills up every interstice between the roots.

For descriptions of suitable soil and manner of potting, I shall borrow from Mr. Hibberd's essay on the cultivation of strawberries in pots, the description of his mode of procedure, which will exactly suit the rose, provided of course that a different handling of the plant is necessary, just to the extent that, in the form and character of its roots, a rose differs from a strawberry. I the more gladly copy this little bit because it has a general usefulness, for almost any plant that is to reside for some time in a pot, and any kind of tree especially would thrive better by such treatment, than by any other. Mr. Hibberd says:—"The stuff for potting should consist of one-third rotten dung, and the other two-thirds stiff loam, with plenty of fibre in it. Whatever the soil of the place, the cultivator must endeavour to prepare a mixture as nearly as possible answering this general description. In sandy or chalky districts, the clearings of ponds and ditches, turf from roadsides, and other similarly nourishing and tenacious materials, may generally be had, and in clay countries turf and dung will mellow the staple; and, if need be, a sixth part of broken brick or charcoal, or grit from the sifted sweepings of gravel walks, may be added to prevent the soil in the pots from becoming a cement, for before we have done with it we intend to have it well hammered. We have had so much to do with tenacious clays that we never fail to use as much as we dare in all composts, and in potting strawberries we usually make the compost thus:—One part rotten dung from a cucumber or melon pit, in which the crop has been completed. This is generally in a buttery state, and the fibre completely broken down. One part rotted turf, which has in the first instance been taken in a thin slice off a loamy pasture, and subsequently stacked up till the whole mass has become like an elastic felt; one part clay which has been a long time exposed to the atmosphere, and the top crust of which has pulverized

into small crumbs, and these top crumbs to be preferred to the stiff material underneath. Lastly, half a part of bricks, tiles, or charred rubbish, broken to the size of horse-beans. This mixture is well chopped over, and used in a sufficiently moist state to become solid with pressure, yet is not sticky to the fingers; better a little too dry than a little too wet. The next necessity is a wooden rammer. The best rammer we ever used was the stump of an old box-tree, burnt at one end into a round knob, and at the other made neat for handling by a binding of tarred cord. The pots, the compost, the rammer, and the plants being ready, we give a lad the task of putting in the crocks, and filling the pots two-thirds full of soil. The crocking must be done with care, for if the drainage is not perfect the plants will make no return. We prefer two inches of drainage, but can do with one good hollow crock fitting nicely over the hole, hollow side downwards. We take one of these pots, partially filled with the compost, and ram the soil quite hard. The exact amount of soil, to allow room for the ball of roots must be learnt by experience, and about that there will be no difficulty. The plant is turned out upon the hard bed of soil thus formed in the pot, and the pot is filled in with the left hand, while with the right the rammer is plied all round till the plant is at last embedded in a sort of earthen wall, and there will be in the six-inch pot as much soil as is usually put in one double the size."

The potting will check the further growth of the plants, although they will continue to make root, and establish themselves in the new soil; and, whilst they are so doing, the cultivator's efforts must be directed to the ripening of the wood, and bringing the buds into that plump and prominent state that will insure both an early and strong growth, when forcing commences.

To that end, place the plants, from this time until the end of August, on a border under a south wall, each pot to be placed upon a slate, or some other contrivance by which worms will be kept out; and mind that no plunging or other device must be resorted to to keep the sun and air from the pots, but simply place them on some hard surface, and surround each pot with several short stakes, placed at a little distance from it, so that the head of the plant may be well opened by tying out the branches to these stakes, bending them as much as possible into a horizontal position, which will have the twofold effect of improving their shape and of exposing the wood more thoroughly to the ripening influence of sun and air. Moreover, the check to growth which the tying out will occasion will cause the rising sap to swell up the buds at the base of the shoots, instead of producing useless growth at the summits of the rods which have been tied. A good watering should be given when they are thus placed, but afterwards no more than is required to prevent exhaustion, the object being to induce early rest. This will be thoroughly accomplished by the end of August or early in September, when they will have to be preserved from the exciting influence of the autumnal rains and dews.

To this end, place a common cucumber-frame on four large flower-pots, with its back to the south; into this set the plants,

and put on the lights, tilting them up at the back, so that a thorough draught of air may circulate freely through, and moisture be excluded. The same conditions might be secured to them in an orchard-house, which is thrown open for the ripening of fruit-trees.

It may be that the cultivator does not possess any roses fit for forcing, yet is resolved to have a feast of roses at the dawn of the New Year. In such a case there will be no difficulty in securing them, by application to any of the nurseries where roses are largely cultivated; for at these places small specimens are raised and prepared expressly for the purpose. Messrs. Lane and Son, of Berkhamstead, Herts, and Mr. Fraser, of Lea Bridge Road, produce roses of this sort largely; and as they force them every year from the first, they are in a condition suitable for forcing when they come into the cultivator's hands. If I were selecting for myself, I should prefer short briar or manetti bushes of the following sorts:—

TWENTY FINE ROSES FOR POT-CULTURE.

Alphonse Belin, Achille Gonod, Admiral Nelson, Beauty of Waltham, Catherine Guillot, Charles Lefebvre, Elizabeth Vigneron, François Lacharme, General Jacqueminot, Jules Margottin, Lælia or L. Peyronny, Le Rhône, Madame Alfred de Rougemont, Madame C. Wood, Madame Rivers, Maréchal Vaillant, Mrs. W. Paul, Modèle de Perfection, Princess of Wales, Victor Verdier.

MANAGEMENT OF VINES.

BEING in difficulties, I ask your advice. Being much taken with the illustration of Ground Vinery, I resolved to try my hand, so purchased two Black Hamburgs from Edwards's, the best they had, said to be good canes, as large as a yard-stick, and about twenty buds; had them properly planted last autumn, and staked up from the ground. Bought a ground vinery at a sale, thirty-four feet run, in pieces apparently made from a greenhouse ridge, but thought would answer, being cheap—merely £2. Now, my first difficulty was to know where to place the vinery. The end of March found the buds about two inches long, so placed the vinery in position at once. Having one of Wells's circulars, with cultural directions, which said that at the beginning of May, when the buds were about two inches, rub off every other one. Now at this time mine had grown six inches, which rather puzzled me (being a complete novice in the art). However, I endeavoured to carry out the directions as well as possible with my limited knowledge, so I proceeded to rub off every other shoot, most of them having fruit buds.

Now this proceeding greatly disfigured the plant, the buds left being all on one side of the cane; and from this time forth it seemed to go back instead of forward, the fruit-buds gradually disappeared, and the leaves got a scorched-up look. Such being the case, I tried

to ascertain the cause, so referred to FLORAL WORLD for dimensions, which in my case were 28 in. span, 16 in. slope, and 10 in. from ground-line to ridge. Now I have concluded they were burnt up from being too close to the glass. So I inserted two more bricks making it three at each corner, since which it has recovered, and looks clean, and growing nice and green.

If you can give me a hint or two to prevent failure next season, I shall be greatly obliged. I was much chagrined at my failure, from the fact of having confidently told my friends I expected to grow a few bunches of a pound weight each, at which they gravely shook their heads. However, I think from my own experience I should do better next time. I should like to adapt the vinery I have, if possible, as Wells's are rather more expensive than I can afford. There is still one bunch, not a large one, which I think will come to maturity.

T. F.

[We should fancy, from your letter, that your vine got burnt up through an insufficiency of air. You should have taken off every other bud on each side, not stripped every bud off on one side. Mr. Wells never advised *that* in his circular. A safe rule is to (say) Leave the side-shoots a foot apart on each side of the cane, when the young canes begin to grow at first, and then stop the shoots one leaf above the bunch. The next winter, prune back to one eye, and should two or three buds push, leave them until you see which has a bunch at its point, then rub the others off. The best and strongest shoot will generally push from the bud on the young wood. By paying attention to these simple matters, you will have no difficulty in managing the vine to your satisfaction.]

TO DESTROY WASPS' NESTS.



THIS is the simplest thing imaginable. A few sticks, some pieces of rag, and a bottle of the best turpentine, are all the weapons necessary. During the daytime, mark the nest so that the passage into it can be easily found at night, without disturbing the inmates. When you get to the nest, saturate a piece of rag in the turpentine, place it on the end of the stick, and thrust it into the nest, and cover the hole with a sod, to prevent the fumes from the turpentine escaping into the air. There cannot possibly be a more effectual means of destroying them than this. I have practised this system for over twelve years, and have not had a single failure when the turpentine was good and fresh. This is much better than using squibs made with powder, and then digging them out. It will be as well to add that turpentine which has been lying about in a country grocery for nobody knows how many years, is useless.

GEORGE GORDON.

NAMES AND CATALOGUES OF ROSES.



WHY should the estimable families of eminent rose-breeders become a nuisance to bewildered purchasers of the beautiful products of their skill? Why should my rose-beds be a puzzle to me, that they may be a register of all the Pauls and the Verdiers?

Why, again, should those excellent men, our gardeners, be so uncomfortable whenever they have to mention the names of some of our sweetest flowers? If we must have French names, might not we be mercifully allowed, considering the value of the English market, to have moderately short and simple ones?

It seems to me that the catalogues which are sent out with so much expense and trouble by our great rose-growers might be much improved—1. If the beautifully delicate, yet distinct gradations of colour could be better classified. 2. If the descriptions were written with a view to identification rather than advertisement.

I grow a rather large number of the best roses; and though my unpractised eye finds too little difference between some new kinds, yet generally a little observation of the shape, colour, and habit of the flowers, foliage, and stems, enables me to know a variety when I see it. Surely the clever gardeners who are interested in roses must see these distinctions much more clearly than I do, and ought to be able to express them in words. I find the best catalogues of little use for identification.

W. J.

Shudy Camps.

NOTES ON ROSES.

BY THE REV. W. F. RADCLYFFE, OKEFORD-FITZPAINE.



IN the FLORAL WORLD for June, 1868, page 186, under the description of *Baron Lassus de St. Genies*, the Editor asks, "Has there not already been a rose let out of the above name?" In 1862 or 1863 Granger sent out the *Baroness Lassus de St. Genies*, but I do not believe the Baron has been sent out before. It was described somehow as follows:—

Baronne Lassus de St. Genies (Granger).—Red, with purple shading, globular and large, and of good form.

I have forgotten the exact words, but the above is near enough. I add the roses of late, though not latest date, that are worth a place under "Finger Post."

Madame Fillion.—Salmon rose, a new colour, cupped.

Emile Boyau (W. Paul).—Flat, full, pale flesh purple, tinted at the edges, flowering abundantly.

HORTICULTURAL AFFAIRS.



THE exhibitions which we shall have to record in this month's impression have been devoted principally to the queen of flowers. We shall not attempt to describe them all fully, for in many cases it would occupy space with useless repetitions. Considering the season, it excited no little surprise that the roses were shown in such good condition as they were generally, especially by the best growers. We will take first the

CRYSTAL PALACE ROSE SHOW, JUNE 20.—In a majority of the private gardens in the southern parts of England the first bloom of roses was quite past by the 15th of June. In fact, the rose season in the south was virtually over before the date of the Crystal Palace Show, yet roses were shown in plenty, and, considering the season, in admirable condition, and the greatest possible variety. Looking along the table, the most exigent critic must have confessed that the exhibition was equal to the average at least, and the day was a great day at the Crystal Palace, the company numbering nearly fifteen thousand. The weather was kind, though the barometer had been falling for several days in succession, and there was no more rain than just sufficed to lay the dust. In the trade classes, Messrs. Paul and Son, of Cheshunt, took the highest prizes of the day, being first in the class for seventy-two varieties, and again first with forty-eight varieties, with extraordinary collections. But Mr. Keynes followed close, and Messrs. Fraser, Mitchell, and Cant were strong in several of the large classes. Amongst amateurs, the Rev. E. N. Pochin took the lead with charming flowers. Mr. R. B. Postans, a new exhibitor, made a creditable display. Mr. Hedge, of Colchester, did remarkably well in the class for teas and noisettes. The following are the names of the varieties in a few of the leading collections:—*Messrs. Paul and Son's First-prize Forty-eight.*—Charles Rouillard, Francois Treveye, Xavier Olibo, Anna de Diesbach, Triomphe de Rennes, Alfred Colomb, Abel Grand, Baroness Rothschild, Pierre Notting, Devoniensis, Dr. Andry, Madame Fillion, Mrs. Charles Wood, Duchesse d'Orléans, Gloire de Santenay, John Hopper, Maurice Bernardin, Jean Lambert, Maréchal Niel, Lælia, Charles Lefebvre, Monsieur Boncenne, Victor Verdier, Madame Eugène Appert, Léopold Hausberg, Horace Vernet, Madame Furtado, Marie Baumann, Comtesse de Chabrilland, Madlle. Marie Rady, Souvenir d'un Ami, Josephine de Beauharnais, Mrs. George Paul, Gloire de Vitry, Niphetos, Sénateur Vaisse, Madame Rivers, Prince de Portia, La Reine, Madame Thérèse Levet, Sénateur Favre, Madame Victor Verdier, Marguerite Dombrain, Madame Caillat, Beauty of Waltham, La Ville de St. Denis, Duke of Edinburgh. *Rev. E. N. Pochin's First Twenty-four.*—Louise Peyronny, Climbing Devoniensis, Gloire de Vitry, Celine Forestier, Prince Camille de Rohan, Madame C. Wood, Comtesse Chabrilland, Marguerite St. Amand, Maréchal Niel, Duc de Rohan, Général Pélissier, Xavier Olibo, Général Jacqueminot (the only "General" in a leading collection), Dr. Andry, John Hopper, Devoniensis, Charles Lefebvre, Madame Damaizin, Victor Verdier, Madame Furtado, Sénateur Favre, Souvenir de la Malmaison (scarce at this meeting). *Mr. R. B. Postans' Second Twenty-four.*—Madame C. Joigneaux, Mrs. Rivers, Madame Falcot, a beauty in the bud; Dr. Andry, Madame Crapelet, Vicomte Vigier, Madlle. Marguerite Dombrain, Queen Victoria, Gloire de Vitry, Devoniensis, Fisher Holmes, Madame Victor Verdier, Marie Baumann, John Hopper, Esmeralda, Alfred Colomb, Comtesse de Jaucourt, Maréchal Niel, Victor Verdier, Madlle. Bonnaire, Charles Lefebvre, Madame Boll, Prince G. de Rohan, Triomphe d'Amiens. *Mr. Pochin's First Twelve.*—Madame Furtado, Climbing Devoniensis, Abel Grand, Monsieur Boncenne, Maréchal Niel, Xavier Olibo, Devoniensis, Francois Louvat, Général Pélissier, Madame C. Joigneaux, Niphetos.

Yellow Roses.—Mr. Keynes in the trade, and Mr. Hedge in the amateur class, were the chief exhibitors of tea and noisette roses. Mr. Bristow and Mr. Ingle contributed beautiful collections. Mr. Cant put up a box of Maréchal Niel, which was shown everywhere, it is so well adapted to light up a stand of mixed roses. In Mr. Keynes' lot were Louise de Savoie, Maréchal Niel, Triomphe de Rennes, Gloire de Dijon, La Boule d'Or. In Mr. Hedge's lot were Madame Margottin, Souvenir d'Elise, L'Enfant Trouvé, Bougere, Maréchal Niel, Souvenir d'un Ami, Madame Villermoz, La Boule d'Or, Marquis de Foucault, Gloire de Dijon, Cloth of Gold, Homer. Mr. Bristow, who took second place to Mr. Hedge in this class, had

Madame Bravy, Triomphe de Rennes, Armide, Devoniensis, Gloire de Dijon, Isabella Gray, Charles Reybaud, Madame Margottin, Céline Forestier, Eliza Sauvage, Comte de Paris, L'Enfant Trouvé. In every case the best flowers were small and partially expanded; this was peculiarly the case with Mr. Hedge's. Prizes were offered for a hundred roses of any one sort in a basket, and Messrs. Paul and Son, cautiously avoiding all attempt at dressing up a trophy, sent a hundred flowers of Marie Baumann in a clean square basket, and won first place by the splendour of the flowers. Decorative groups and arrangements were contributed, but they were unworthy of the space they occupied.

THE HEREFORD ROSE SHOW, held in the Shire Hall, at Hereford, was an entire success. In the amateurs' division limited to Hereford, Miss Bulmer, Holmer; Mr. Hawkins, Sugwas; and Mr. Coleman, gardener to Lord Somers, Easton, were amongst the principal prize-takers. In the amateurs' class open to all England, the Rev. P. Smythe, Solihull; C. J. Perry, Esq., Castle Bromwich; Mr. Moore, gardener to T. Loyd, Esq., The Priory, Warwick; J. H. Arkwright, Esq., Leominster; and the Rev. G. Arkwright, figured prominently in the prize list. In the classes set aside for nurserymen, Messrs. Paul and Son, Cheshunt, carried off high honours, being first with seventy-two single trusses, thirty-six three trusses of each, and for twelve and twenty-four new roses of 1866-7-8. The blooms were in superb condition, and wonderfully fresh, not showing the least signs of having travelled the distance they had. We will take note of the new varieties first, indicating a few of the best in the respective stands. Horace Vernet, bright crimson, well formed; Duke of Edinburgh, a fine vermilion, lovely in colour, a seedling raised by the exhibitors; Souvenir de M. Boll, bright cherry-red, large bold petals, a desirable colour; Charles Verdier, pink; Françoise Trevey, bright scarlet, shaded with coppery crimson; Thorin, clear carmine; Felix Genero, violet-rose, globular in form; Madame Margottin, deep citron-yellow, a tea-scented variety; Mrs. George Paul, bright rose; Annie Wood, clear red, imbricated in form, excellent in quality; Mons. Furtado, sulphur-yellow, an improved Narcisse, another desirable addition to tea-scented varieties; Charles Turner, a new rose of 1863, which seems likely to be worth the name it bears; Paul Verdier, bright carmine, globular, but small; Antoine Ducher, dark rose-colour, globular, good; and last, though certainly not least, for we regard it as one of the best recent introductions, Mons. Noman, salmon-rose, reflexed, an excellent variety. Of older roses exhibited by this firm in fine condition, we may particularize the following: Marie Rady, Sénateur Vaisse, Charles Lefebvre, Madame Caillat, Madame Thérèse Levet, Marguerite Dombrain, Souvenir d'un Ami, Mons. Boncenne, Niphetos, Marguerite de St. Amand, Pierre Notting, Triomphe de Rennes, Alfred Colomb, Comtesse de Chabrilland, Madame Charles Wood, and Dr. Andry. Mr. John Cranston had a nice lot of blooms of most of the best varieties, but not for competition; and Messrs. Walter and Cooper, of Warwick, had a grand stand of 24, three trusses of each. The dinner-table decorations and bouquets from ladies were above the average of those seen at most shows; and the cottagers lent their aid to the exhibition by contributing some capital stands of roses.

ROYAL HORTICULTURAL SOCIETY'S ROSE SHOW, JUNE 30th, brought together some grand stands, but the hearty appearance and freshness of the flowers was over before the main body of the visitors could see them, through their being placed in the conservatory, in which the heat was suffocating. As a guide to our readers in the making-up of collections, we subjoin the names of those in the principal winning stands:—

In the large trade class for 72 distinct kinds, one truss of each, Mr. B. R. Cant, Colchester, first, with beautifully-fresh blooms of the following: Madame Charles Wood, Vicomtesse de Cazès, Sénateur Vaisse, Queen Victoria, François Lacharme, John Hopper, Mathurin Regnier, Marie Baumann, Anna de Diesbach, La Brillante, Président, Arles Dufour, Fisher Holmes, Mrs. Rivers, Camille Bernardin, Comtesse de Chabrilland, Horace Vernet, Madame Crapelet, Pierre Notting, Charles Rouillard, Exposition de Brie, Beauty of Waltham, Dr. Andry, Madame Derreux Douville, La Boule d'Or, Olivier Delhomme, Louise Peyronny, George Prince, Rubens, Souvenir de Comte Cavour, Maréchal Vaillant, Princess of Wales, Jean Lambert, Maréchal Suchet, Lord Macaulay, Paul Verdier, Charles Lefebvre, Maréchal Niel, Alfred Colomb, Jesephine de Beauharnais, Marie Rady, Mlle. Bonnaire, Vicomte Vigier, Madame Clémence Joigneaux, Léopold Premier, Souvenir d'Elise, Duc de

Wellington, Le Rhône, Madame Bravy, Madame Boutin, Madame Vidot, Général Jacqueminot, Marguerite Dombraïn, Madlle. Annie Wood, Madame Caillat, Maurice Bernardin, Souvenir d'un Ami, Madame Moreau, Niphetos, La Duchesse de Morny, Madame Victor Verdier, Cloth of Gold, Antoine Ducher, Comte de Nanteuil, François Louvat, Xavier Olibo, Gloire de Vitry, Lord Raglan, Marguerite de St. Amand, Duchesse de Caylus, Madame Hector Jacquin. Messrs. Paul and Sons, Cheshunt, second, with fine boxes of bloom; Mr. J. Fraser, third; and Messrs. E. P. Francis and Co., Hertford, fourth.

For 48 kinds, three trusses of each, Messrs. Paul and Son and Mr. Cant changed places, Messrs. Paul and Son being first, and Mr. Cant second, Messrs. Francis third, and Mr. W. Paul fourth. Messrs. Paul and Son's collection was in splendid order—fine large blooms, and particularly fresh; the undermentioned were especially good: Marie Rady, Pierre Notting, Gloire de Santenay, Léopold I., Sénateur Vaisse, Prince de Portia, Duke of Edinburgh, John Hopper, Victor Verdier, Monsieur Boncenne, Dr. Andry, Alfred Colomb, Maréchal Niel.

For 24 kinds, three trusses of each, Hybrid Perpetuals only, Messrs. S. Perkins and Son, Coventry, stepped in first with grand boxes of flowers, equal to any in the exhibition, closely followed by Mr. Cant, Messrs. J. and C. Lee, Hammer-smith, being third. In the 24's, one truss of each, Mr. Cant again first, with Messrs. Perkins and Son second, and Mr. Clark, Brixton Hill, third.

The class for 12 Tea-scented and Noisettes brought several fine boxes. Messrs. Paul and Son had happily caught the flowers at the right time; they were not too fully expanded, and carried off first prize with Céline Forestier, Gloire de Bordeaux, Amabilis, Madame Margottin, Alba Rosea, Monsieur Furtado, Souvenir d'un Ami, Maréchal Niel, Louise de Savoie, Gloire de Dijon, Souvenir d'Elise, Triomphe de Rennes. Mr. Cant second.

Taken on the whole, the blooms in the amateur classes were not so good as those contributed by the trade; but those in the first-prize collections left nothing to be desired, and fully sustained the reputation these gentlemen enjoy as first-class rosarians.

In the large class of 48, one truss of each, the Rev. S. R. Hole, Caunton Manor, Newark, first, with grand flowers of the following: Madame Knorr, Madame Furtado, Charles Lefebvre, Gloire de Dijon, Duc de Rohan, Marguerite de St. Amand, Comtesse de Chabrilland, Pierre Notting, Lord Clyde, Charles Rouillard, Madame Clémence Joigneaux, Duchesse d'Orléans, Jules Margottin, Madame Victor Verdier, Maréchal Niel, Souvenir de Comte Cavour, Alphonse Karr, Prince Camille de Roban, Souvenir de Malmaison, Antoine Ducher, Comtesse de Paris, Léopold I., Madame Vidot, Madame Boutin, Hippolyte Flandrin, Alfred Colomb, Céline Forestier, Lord Raglan, Madame Hoste, Gloire de Santenay, Madame Boll, Devoniensis, Gloire de Vitry, Juno, Maréchal Vaillant, Maurice Bernardin, Coupe de Hébé, Sénateur Vaisse, Madame Moreau, Fisher Holmes, Mathurin Regnier, John Hopper, Souvenir d'un Ami, Madame Charles Wood, Louise Magnan. Mr. J. Hedge, Reed Hall, Colchester, second. Mr. Chard, gardener to Sir F. H. Bathurst, Clarendon Park, Salisbury, third.

For 36, Mr. R. Keen, gardener to J. G. Sheppard, Esq., High House, Wickham Market, first; Rev. S. R. Hole, second.

In the classes for twelves and twenty-fours, the Rev. E. N. Pochin, Sibley Vicarage, Loughborough, occupied the first place in both instances with immense flowers in a beautifully-fresh condition. Mr. Postans and Mr. Loder, both of Brentwood, second in the two classes respectively.

There were also several other contributions, in the shape of 18 new roses, 12 good trusses of any new rose of 1866 (Alfred Colomb carried off the first and second prizes in this class), stands of Teas, Noisettes, Moss and Yellow Roses, besides good vases and bouquets; but our space will not permit us noticing them.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The third and last great show of this Society was worthy the place and its managers. The flowers which graced the banks at the early shows were, as a matter of course, missing; but their places were filled with noble collections of ornamental foliage plants, in which were fine specimens of Sarracénias, from Mr. Baines, Bowden, Cheshire; good palms from Mr. Fairbain's, Sion House, and beautiful Marantas, from Mr. Smith, Harlesdon House, Middlesex. The classes for Cape Heaths were well filled by the leading growers of this class of plants. Magnificent groups of stove and greenhouse came from Mr. Baines and Mr. Peed, in which were grand examples of the best varieties

of *Kalosanthus*, which is the most useful thing we have for flowering late in the summer, and early in the autumn. Good groups of ferns were staged by Mr. Williams, Holloway; Mr. Hill, Ware; Mr. Woodward, Ewell, and several others. Two beautiful groups of British ferns came from Messrs. Ivery and Son, Dorking, with several fine plants of *Lilium auratum* mingled with them. The undermentioned were the most prominent, and all were of first-class merit: *Athyrium Filix-fœmina formosa-cristatum*, A. F.-f. *Fieldiæ lancifolium*, A. F.-f. *corymbiferum*, A. F.-f. *diffusa multifidum*, A. F.-f. *depauperatum*, A. F.-f. *glomeratum*, A. F.-f. *grandiceps*, A. F.-f. *Pritchardi*, A. F.-f. *Grantiæ*, A. F.-f. *Victoriæ*, A. F.-f. *Frizelle nanum*, A. F.-f. *conioides*, A. F.-f. *Vernoniæ*, A. F.-f. *plumosum*, A. F.-f. *multiceps*, A. F.-f. *pumilum*, *Lastrea Filix-mas Jervisi*, L. F.-m. *Ingrami*, L. F.-m. *cristatum*, L. F.-m. *Barnesi*, L. F.-m. *Pinderi*, *Lastrea cristata*, L. *cristata Iveryanum*, *Polystichum angulare plumosum*, P. a. *bulbiferum*, P. a. *lineare*, P. a. *brachiata cristatum*, P. a. *tripinnatum*, P. a. *oxyphyllum*, *Scolopendrium crispum*, *S. marginata trifurcata*. To enjoy this truly beautiful class of plants, no stove is necessary, for many of these are quite equal to any amongst the exotics; in fact, many of these are superior in point of beauty to many of the exotics that are considered first-rate.

Pelargoniums.—In the trade class for large-flowering show varieties, Mr. Fraser first, with beautiful examples of William Hoyle, the flowers of which are as good now as when it came before us as a seedling, a wonderful dark flower; Lord Clyde, *Desdemona*, *Caractacus*, very fine; Division, good in every respect, barring its abominable name; *Pericles*, Amy, Maid of Honour, Progress. In the amateurs' class, Mr. Ward first, with Beacon, Mary Hoyle, *Desdemona*, Maid of Honour, Conflagration, *Caractacus*, Sunny Memories, *Pericles*, Fairest of the Fair. In the open class for Fancy *Pelargoniums*, Mr. Fraser first, with Clothilde, Miss in her Teens, Constance, *Delicatum*, Anne Page, Hebe; these were good for the time of year, indeed, far better than could be expected in such a roasting season.

Zonal Pelargoniums.—The large plants were not up to the right mark. Last year they were splendid. What is the matter, that these attractive subjects so rarely come before us as they should? In the class for six, Mr. Catlin, gardener to Mrs. Lermite, of Finchley, first, with Oliver, a good scarlet; *Amelina Grisau*, Clipper, Rose Rendatler, Madame Vaucher, with few flowers; Eugénie Mezard. These were not so good as Mr. Catlin has shown again and again in times gone by. Second, Mr. Fraser, with Julius Cæsar, Clipper, Emily Licau, Virgo Marie, a far better white, as now shown, than Madame Vaucher; Monsieur Rendatler, a fine salmon; Louis Rœsler, a soft cerise-red, good. Third, Mr. Hawes, gardener to—Noble, Esq., Hornsey, with very large, well-grown, but badly-trained plants of Madame Vaucher (like Mr. Catlin's, not enough flowers), Tintoret, *Amelina Grisau*, Henri de Hancock, a bad pale flesh-coloured variety; Una, a good, clear, light cerise.

New Varieties of Golden, Silver, Bronze, and Variegated Zonals were shown in considerable numbers, but we cannot afford time to deal with them now.

Mr. Charles Turner, Slough, exhibited fine stands of twenty-four blooms of Carnations and Picotees, and was awarded an extra prize in both instances. In the stand of Carnations were the following magnificent new kinds: *Annihilator*, *Eccentric Jack*, *Graceless Tom*, *True Blue*, *James Merryweather*, and *William Cowper*; and the undermentioned old ones: Flora's Garland, Mr. Martin, Lord Rancliffe, Jenny Lind, John Reet, Brutus, Duke of York, The Lamplighter, Fanny Gardener, Anthony Davies, John Stott, Lord Lewisham, and several seedlings and duplicates of those named. The Picotees consisted principally of the following: Jessie, Mr. Varley, Miss Sewell, Mrs. Brown, Countess of Wilton, William Summer, Forester, Miss Meeking, Sultana, Nimrod, Eugénie, Mrs. Norman, Mrs. May, Lord Allen Churchill, Countess, Mrs. Fisher, Favourite, Scarlet Queen, Lavinia, Princess Alice, and Colonel Clark. Mr. Bragg, Slough, and Mr. Hooper, Bath, also had splendid boxes of these truly beautiful flowers.

Fruit was shown in the greatest abundance by all the leading growers throughout the country. The pines, grapes, peaches, nectarines, melons, cherries and strawberries, which occupied places on the prize, were beyond praise.

BIRMINGHAM ROSE SHOW.—Notwithstanding the frightful weather which we had a few weeks before this successful exhibition came off, good collections of blooms were the rule, and bad ones the exception, and we regret that we are unable to give the whole of the names of the prize-takers, for they fully deserve the highest encomiums that can be passed upon them. To do so would occupy too much room, and all that we need say, after the lengthy report of the Kensington show, is that the arrangements were

such as to call forth the highest encomiums from all sides, and we hope this Society will still continue to receive the hearty support which it so thoroughly deserves.

The following new roses (1866, 7, or 8), were contained in Mr. Keynes's prize stand: *Alphonse de Seyreigne, Alfred Colomb, Antoine Ducher, Charles Verdier, Exposition de Brie, Felix Genero, Fisher Holmes, Hippolyte Flandrin, Horace Vernet, Ipswich Gem, Josephine de Beauharnis, Madame Gravier, Mrs. George Paul, Madame Haussmann, Monsieur Chaix d'Est Ange, Madlle. Marguerite Dombraïn, Madlle. Marie Rady, Madeline Nonin, Monsieur Noman, Mrs. John Berners, Princess Mary of Cambridge, Rose Perfection, Souvenir du Monsieur Boll, Ville de Lyon.*

From Mr. Keynes's other prize stands we select the following, all shown in wonderfully-fine condition: Alfred Colomb, Xavier Olibo, Marguerite de St. Amand, Pierre Notting, Maréchal Niel, Duchesse de Caylus, Souvenir de la Malmaison, Charles Lefebvre, Madame Margottin, Duc de Rohan, Souvenir d'un Ami, Jean Lambert, Lord Macaulay, Mr. J. Berners, Baronne Gonella, La Boule d'Or, Vicomte Vigier, Marie Baumann, Sénateur Vaisse, Gloire de Dijon, Madame Villermoz, Céline Forestier, Triomphe de Rennes, Madame Sertôt, David Pradel, Devoniensis, Abel Grand, America, William Bull.

GARDEN GUIDE FOR AUGUST.



THE long drought and the intense heat have upset the best plans, and marred the handiest work in flower-garden and kitchen-garden alike. There appears to be but one subject for our consideration now, and that is how best to avert or mitigate the evils that result from scarcity of water, and a parched condition of the soil. Before this reaches the hands of the reader rain may have fallen abundantly, and our remarks in that case will be less useful. But as we are compelled to write in anticipation of events, we will suppose the drought to continue far into the month of August. In our own trial grounds we have good crops of all summer esculents, with the exception of carrots, turnips, leeks, onions, and cauliflowers, all of which have, in some measure, failed. Peas have done well though making little growth, and yielding less than usual. French beans have produced abundantly, though they have had but one shower, that of May 29. New Zealand spinach has afforded a few good pickings through July, and marrows were very productive while we helped them with water, and kept the ground between them strewed with weeds, or manure to prevent evaporation. We have derived immense benefit by mulching, and have used for this purpose whatever we could scrape together of vegetable rubbish. The proper course for the gardener *always* is to go on hoping the weather will be right. Therefore we advise that turnips be sown on ground well manured; that round and prickly spinach be sown on drills filled with three or four inches of rotten manure or leaf-mould; that French beans of the earliest sorts, such as *Sim House* or *Fulmer's Forcing*, in drills four inches deep without manure, and that *Sutton's Ringleader Pea* be sown in the same way as the French beans. All these sowings should be made at once, say on the 1st of August. They may be all wasted, but nothing venture nothing have, and if we have a long, warm, showery autumn, they will make a grand return. About the 10th sow a good breadth of cabbage on good ground, taking care to have amongst the sorts enough of the *Rosette Colewort*, which is the most useful cabbage for a garden, though it is not a profitable one. To say that grass mowings would make a nice mulch to strew over seed beds as soon as sown would be absurd *now*, because there is no grass, but we are using light surface clippings of privet and thorn hedges to cover seed beds with, and to cover the ground amongst all sorts of crops. We have given a sufficient amount of advice on the use and abuse of water to render any remarks on that head unnecessary. Irrespective of drought there is the regular work of the season to be done. Cauliflowers must be sown some time from the middle of this month to the middle of the next, winter lettuce and winter spinach must be thought of soon; those who have celery must begin to earth it up. In the flower-garden there is very little to be done beyond keeping things tidy, and lamenting that the grass is burned up. It will take a whole winter's rain to recover the grass, and a few thin sprinklings over the surface with *Lawson's phospho guano* will greatly help it, but this must not be used until rain comes.

NEW PLANTS.



OPHRYS INSECTIFERA, VAR. **ARANIFERA**, *Spider Ophrys* (*Bot. Mag.*, t. 5712.)—Orchidaceæ. A pretty terrestrial orchid from Mentone, and the one which Linnæus regarded as the typical form of that group of *Ophrys*, which includes the lesser and common spider, the Bee and the Drone amongst British orchids.

HYPERICUM PATULUM, *Spreading St. John's Wort* (*Bot. Mag.*, t. 5693).—Hypericineæ. A handsome hardy perennial, native of Japan, flowering in autumn, "and forming a very valuable addition to the list of available border plants."

DALECHAMPIA ROEZLIANA, *Roetzl's Dalechampia* (*Bot. Mag.*, t. 5640).—Euphorbiaceæ. Amongst the many meritorious novelties of the past season, none is more

deserving the attention of cultivators than this beautiful Mexican plant. It was first met with in Vera Cruz by Roetzl, and, according to the absurd practice of naming plants after persons, it bears his name for a specific distinction. It is a member of the vast order Euphorbiaceæ, and belongs to that section of the order the plants of which have broad cotyledons. The genus *Dalechampia* is characterized by the presence of a single ovule in each compartment of the ovary, by the anthers being erect in the bud, by the segments of the calyx in the male flowers touching their margins, and by the two-leaved involucre enclosing flowers of both sexes. These involucres, or, as they will, no doubt be more commonly called "bracts," are in the plant before us of a bright pink colour; the male and female flowers which they enclose are yellow. As respects the peculiarity of its decorative features, therefore, this plant may be classed with the *Bougainvillea* and the *Euphorbia*, in both of which the most highly-coloured portions are not the true flowers, but their appendages. There are two varieties of *Dalechampia Roetzliana*, one with green, the other with pink bracts. It is the last-named that we



HYPERICUM PATULUM.

especially recommend to the favourable consideration of cultivators. One of the most interesting features in the numerous admirable exhibitions of the plant by Mr. Bull, of King's Road, Chelsea, during the past season, was the perfection in respect both of leafage and richness of floral colouring of the very small specimens that were brought forward. It does not need a vast extent of space, or a great length of time, to grow this plant to perfection; indeed, it blooms freely in a small state at every period of the year, and the coloured bracts are so persistent that the plant retains its brightness of colouring for a great length of time. In habit it is an erect-growing under-shrub, with subcordate or spoon-shaped acuminate leaves, five to nine inches long; the stem is clothed with egg-shaped stipules; the peduncles are slender and thread-like, bearing two small green bracts and two large cordate denticulate floral leaves of a bright pink colour. Within these are the male and female flowers, of a pale yellow colour. This is a highly ornamental plant, which may be grown to a large and grand specimen for the stove, or flowered in a small state for the decoration of the table. As it can be flowered at any season, it may be added to the list of select winter-flowering plants; for at this season of the year its gray bracts will be of far greater value than at any other time. As a winter-flowering plant it will need the stove, yet it may certainly be grown and flowered successfully with only warm greenhouse treatment, as, though a stove-plant, it happens to be well adapted for what is termed cool treatment.

EUCALYPTUS GLOBULUS.—This beautiful species of Australian gum-tree has been in cultivation in this country half a century, but has been known only in a few botanic gardens as a curiosity. But it is so elegant in appearance, and so well adapted to the embellishment of English gardens, that it merits to become a favourite wherever such as are called “sub-tropical” plants are cultivated. Like many other such things, this is *not* a sub-tropical plant, as it thrives in the coldest parts of Tasmania, where grapes and olives never ripen. It is a tree of rapid and gigantic growth, requiring the shelter of a cool conservatory in winter, and well adapted for a conspicuous position on the lawn during summer. We are indebted to Messrs. Hooper and Co., of Covent Garden, who offer plants and seeds of this Eucalyptus, for the opportunity of figuring it.



ANGELONIA GRANDIFLORA.



EUCALYPTUS GLOBULUS.

ANGELONIA GRANDIFLORA (*Large-flowered Angelonia*).—A pretty scrophulariaceous plant from South America. It is of most elegant habit, freely branching, with lanceolate leaves, and showy spikes of purplish blue flowers, which are delightfully fragrant. It may be easily raised from seeds, and though usually regarded as a stove plant, warm greenhouse temperature will suit it in the winter, and it may be planted out in the summer months. For this also we are indebted to Messrs. Hooper and Co., who have re-introduced the plant to cultivation.

TO CORRESPONDENTS.

T. S. Northampton.—We should recommend you to cut away the Trentham Black and leave the Black Hamburg; you can depend upon gathering a good crop annually from the latter with fair management, which is not always the case with the first-named.

EARWIG TRAPS.—*Country Curate.*—You need not be in such great trouble about these pests, for a little perseverance in their destruction will work wonders. Those which are eating your dabbias can be got rid of by putting some dry moss in the bottom of 60 sized pots, and turning them bottom upwards on the top of the stakes which support the plants, and a few sticks may be stuck in purposely near the plants with pots on the top, so that the latter are a foot or eighteen inches from the ground. The way to deal with these, is to take a pail of hot water every morning and search the pots, there will be plenty of earwigs in them if they are any way plentiful. Take the pot in one hand, remove the moss with the other, and tip the earwigs into the water. These insects are particularly troublesome just now with the wall fruit. A quick way of disposing of a few thousands, is to cut up ripe bean-stalks, or any other vegetable with a hollow stem, into lengths of about nine inches each, and stick them between the branches of the tree and the wall, fixing them in such a manner as to afford them a ready ingress into the interior. Taking the water as before, draw the stalk from the wall without shaking it about too much, hold one end over the water, and give a good blow with the mouth at the other, which will send them into their (warm) watery grave.

VERBENA PEGS.—*A Lady Florist.*—With the aid of an old worn-out birch broom and a sharp knife, you can soon manufacture sufficient pegs for your use. A new broom would certainly be the best, but as we believe in economy whether dealing with pounds or pence, we use those which are too far gone for sweeping the walks and lawn. We never use old stumps worn to within an inch of the handle, for very few pegs can be got from them, but those which are about half worn out. We first give them a wash, and then, when the band is cut, the pegs can be made at leisure. Cut that part of the peg which is to be fixed in the ground two or three inches in length, and the other part about half an inch long. If you have an objection to work at peg making this hot weather, get a few hundred stout hair pins. These will answer every purpose, and not cost much either.

FERN FRONDS EATEN.—*B. B.*—The common snails and slugs will commit sad havoc amongst indoor ferns if not looked after. Woodlice are also especially fond of the young fronds when first pushing up. You will soon be able to know whether the fronds of your ferns are eaten by slugs or not. If they are, you will see the slime on them. These must be looked after in the evening by the aid of a lantern. Woodlice are rather difficult to deal with, for they generally abound everywhere in such large numbers. The best way to deal with them is to lay amongst the plants a few pots half full of dry hay. They will congregate in these during the day, when they can be emptied into a can of hot water. The hay must be thoroughly dry, or the woodlice will have nothing to do with it. To keep your strain of Phlox Drummondii good, save seed from the best flowers only, for if you save from all, whether good or bad, the progeny will be inferior in colour and size of flower.

T. H. P.—When fuchsias go out of flower they are usually left unpruned and exposed to the weather until there is a sign of frost, when they are housed in a cool place, and left unpruned until they begin to grow in spring. For primula culture see an article in the number for January last.

Val.—The plant is *Clematis vitalba*, the "Traveller's Joy." It may be raised from seed easily, and will grow in any soil, though preferring sandy loam or chalk.

P. B.—If you have a good head of water, a flexible tube and spreader will answer your purpose; if not, and there is no room for an engine on wheels, one of Read's (Quadrant, Regent-street) hand-pumps will suit you, or the "Niagara," made by Tangye and Co., of Birmingham. If you want a good engine, go to Read, of Regent-street, or Warner, of Jewin-street, London.

J. B. A.—We know nothing of the petroleum stoves you inquire about.

PELARGONIUM "MRS. GRIEVE"—At page 222 this pelargonium is described as the property of Mr. Turner. That is a mistake. It is the property of Messrs. E. G.

Henderson and Son, and was shown by them at the Royal Horticultural Society's special exhibition of June 16.

LOBELIA SPECIOSA PROPAGATING.—*W. Simpson.*—To keep this true you must keep up your stock by means of cuttings. In a season like this they are difficult to get, but we adopt a system which has never failed us yet. After the bedding out is done with, we take about a couple of dozen of plants, and turn them out in a bed of rich soil, in a rather shady corner. If the plants are strong and growing vigorously, we do not trouble about their flowering once, but if weak we do not let them flower at all. But supposing them to have flowered the first week in August, we go over the bed and remove the whole of the flower-spikes. If the bed is dry, we give it a liberal soaking a few days after cutting the plants back, and we soon have a fine batch of cuttings ready for taking off. We do not suppose that you have a batch of plants turned out, therefore your best plan will be to cut a few plants back where they will be least noticed, and keep them well watered until they furnish you with a supply of cuttings ready for propagation.

WASPS IN VINERY.—*Anxious Inquirer.*—Your proposed plan of putting each bunch of grapes in a muslin bag would no doubt prevent the wasps getting at, and eating the berries, but it is by no means the best method to adopt, or the simplest. Bags should never be used where any importance is attached to the preservation of the bloom, for very few people care to eat grapes which have the appearance of having been under the influence of the blacking-brush. Your best plan will be to procure some thin canvas, and stretch it over the opening of the ventilators, and keep the doors shut. The canvas must not be woven so tight as to prevent the admission of air; Haythorn's hexagon net is first-rate. The meshes are large enough to admit plenty of air, but too small to allow the passage of wasps, and the large flies which are nearly as destructive to the grapes. This can be done with less expense and labour than making the muslin bags, with the additional advantage that the beautiful bloom which so highly enhances the appearance of grapes is not rubbed off. The spotted appearance of some of the berries is caused, no doubt, by your syringing them. Some growers advocate syringing grapes, and say they cannot keep the red spider in subjection without doing so. We must say that we have seen none so thoroughly well finished as those which never received a drop of water upon them. Syringing grapes spoils their appearance, more or less; it is against nature, and therefore wrong.

RAISING CHINESE PRIMULAS FOR SUCCESSIONAL FLOWERING.—*Lady G.*—Having given instructions frequently, we now, for the sake of change, take the following from Mr. B. S. Williams's catalogue:—Taking them all in all, these are the most valuable winter flowering plants in cultivation. They commence to flower in the early part of November, and by care a succession may be kept up till the spring is far advanced. For bouquets also they are almost invaluable. Sow in March, April, May, June, and July (with great care, for although so easily raised in the hands of some, it is nevertheless a great difficulty to many, who in many instances too hastily condemn the quality of the seed), in pots filled to within half-an-inch of the top with sifted leaf-mould, or what is better, with thoroughly rotted manure, which has been exposed to all weathers for a year or two. Leave the surface rather rough, and sprinkle the seed thinly upon it, not covering with soil; tie a piece of thin paper over the top of the pot, and place it in a warm house or hot-bed. When the soil becomes dry, water the paper only; the seed will then germinate in two or three weeks; after which, remove the paper, and place in a shady place, potting off when sufficiently strong into small pots and place near the glass in a frame or greenhouse. The above method of raising the seed is always followed by one of our largest growers for Covent Garden Market, and never fails. One caution is necessary: never use peat mould or any soil liable to cake on the surface or turn green, as a loss of the seed is a certain consequence.

LAVENDER HILL.—It is not likely that any other rose will do better than the one you have already. Why not clothe the railing with Virginian Creeper? It is a glorious plant for the purpose.



GARDEN SCENE

THE FLORAL WORLD

AND

GARDEN GUIDE.

SEPTEMBER, 1868.

NOTES ON THE DECORATIONS OF AN ENTRANCE-COURT.



IN the FLORAL WORLD of 1864 and 1865, a series of papers appeared, under a general heading, "The Plunging System." The object of those papers was to give an account of a new system of decorating the entrance-court of the writer's residence at Stoke Newington, by "plunging" instead of "planting." This system has been carried on during the past eleven years, and may perhaps be continued another year; but, after that time, will either be transferred to another field, or altogether abandoned, as the writer is about to quit the district, and in his future residence may not need to practise the "plunging system." It was, however, thought desirable to afford the readers of the FLORAL WORLD as good an idea as a coloured representation of the entrance-court could convey, of the effect produced by this system of decoration, and a sketch, of which the accompanying print is a copy, was made for the purpose in April last, when the display consisted of hardy spring flowers, such as yellow alyssum, white iberis, early tulips, hyacinths, etc. Those of our present readers who possess the volumes of the FLORAL WORLD for 1864 and 1865, have ready means of tracing out the origin and growth of this system, and for such as elect to adopt it, the suggestions offered in those papers will, no doubt, be found of some service. If the writer of this should be disposed at any time to boast of the success of the system, as affording variety of display, almost without limit, at every season of the year, and with every change a splendour unattainable by the most perfect system of planting, however bold and frequent the successions accomplished in the colouring, it must be admitted that he has made but few converts hitherto, and that the plunging system has certainly not, up to this time, attained to any degree of popularity. It must be admitted, at the outset, that it has its difficulties, and is, comparatively speaking, costly; but there can be no question that for those who really love

their gardens, and whose lot is cast in the near vicinity of towns, it is *the* system, and should have many exponents amongst amateurs who are not particularly stinted for means or leisure. Probably the main reason hitherto of the indifference of amateurs, is the simple fact that ocular demonstration of the value of the system is needed for its establishment. This we cannot offer, in a general way, to our readers, though many hundreds of amateurs residing in the northern suburbs of London are familiar with the fore-court here figured, and with the fact of its frequent change of aspect the whole year round, the plants used for its embellishment being wholly grown in pots, and plunged where required to form groups, lines, and masses, as the materials at command and the season of the year may render desirable. The next best thing to ocular demonstration on the spot is, doubtless, a coloured picture, and we hope the one now offered will at least serve to arrest attention; for if the plunging system is not adapted for entrances, terraces, and promenades, and especially the proper thing for gardens tastefully kept in the neighbourhood of towns, we have been under a delusion for eleven years at least, and fear there is another year of similar darkness and error in store for us, after which we shall probably get away into the open country, where, instead of plunging in this way, we shall plunge, *in medias res*, more thoroughly rural than such as we are now, perforce, contented with.

This is the best time of the whole year to commence the plunging system, and we will again offer a few notes upon its advantages, and the means required for carrying it into effect. First, as to its Advantages. One of the most important is, that in the scene selected for the purpose a *rich display is secured for every season*,—indeed, for almost every day throughout the year, without a break. When one set of plants has flowered out, another set is ready to take its place, and when the winter cold renders it impossible to have flowers out of doors, various evergreen shrubs, and especially such as have variegated leaves and scarlet or golden berries, are available, and these are soon succeeded by the spring flowers, and thus the round of the seasons becomes literally an endless wreath of leafiness and bloom. Another advantage is, that whatever plants are employed, they are seen at their *best only*; they go through their several stages of growth and decay elsewhere, having place in the plunge-ground only while in their most perfect condition. Look at an ordinary parterre at any time from October to February, and we see nought but bare earth. But in the plunge-ground there have been two or three distinct and beautiful displays in that time, beginning with chrysanthemums, followed by evergreen shrubs, and with the dawn of spring, showing some glimmerings of new light in snowdrops and crocuses, that flower in advance of those in the borders, in consequence of having had the protection of pits and frames, since they were potted the previous autumn.

Make another comparison during March, April, and May, and probably the result will be more remarkable. Many a parterre is as unclothed in those three flowery months as in January, but we are forced to say that in some cases charming displays of spring

flowers occur without the aid of the plunging system. But in the plunge garden the displays in those three months should be actually more beautiful than in any other three months of the year, and they certainly have been so at Stoke Newington, for our grandest displays of geraniums, gladioli, roses, lilies, and whatever else may be employed in the summer and autumn, are unequal in beauty and freshness to our bright masses of crocuses, hyacinths, tulips, polyanthuses, candytufts, and alyssums, succeeding each other as they do rapidly, and at some points all meeting, as happened at the moment when this sketch was made. The long border was then surfaced with large alternate patches of white candytuft (*Iberis saxatile*) and yellow alyssum (*Alyssum saxatile*), with tulips between them, and in the centre stone bed hyacinths, crown imperials, tulips, and crocuses were associated. There is yet one more advantage, and that is that it affords an almost *unlimited range for the selection of subjects*. The range for selecting plants for planting out is limited, but here we are free to adopt whatever can be grown in a pot, and may be put out of doors for a time without serious injury. I will here contrast two beds, both of them in the same garden, and the property of the writer of this. One is filled with Japanese lilies, tritomas, gladioli, tall varieties of Lobelias of the "cardinalis" section, with a few tufts of that fine tall blue grass, *Elymus glauca*, and edged with small plants of hydrangeas without flowers for the sake of a bright green band, to afford a decided contrast to stone and gravel. It is one of the loveliest beds ever seen, the blue grass and the dark swordlike leaves of the tritomas make a most curious and delicate groundwork for the many splendid flowers that glow above it or shine through it. The other bed is planted with the same subjects, with the exception solely that it is edged with geraniums, which are in a bright and satisfactory state; but the gladioli, the lilies, and the tritomas are not much better now than dried straws and rushes, for the heat forced them into bloom prematurely, and the drought killed them off the ground, the appearance of the bed now being most unsightly. It may be asked how it is that the plunge plants did not suffer in the same way. To which the answer is simply this, that being all in pots they were kept near the shade of large trees, plunged in a cool bed of rotten moss and leaves, and well supplied with water until they were in fit condition for the display, and they surpass by many degrees all specimens of the same varieties of plants grown in the same way in previous seasons, the extra care we were compelled to give them on account of the excessive heat having (doubtless aided by the heat) resulted in increased vigour of growth and bloom. The few failures we have had in working out the system have been as convincing of its virtue as our best successes. Failures will occur in bedding even with the ablest hands, but before they are known to be failures, weeks or months have elapsed, and it is next to impossible to remedy them. In the plunging system failure is next to impossible as respects the display, because if one batch of plants goes wrong, and does not flower well when it ought to, there will be found something else to take its place; for it is one of the conditions of success that the

practitioner shall have several strings to his bow. And as for mistakes of colouring and grouping, they may occur undoubtedly, but they are seen instanter, just as a mistake in making up a bouquet of flowers, and may be as quickly remedied by re-assorting the materials.

Now, as to the practical part of the subject. The beds and borders selected for the experiment should be cleared of the common soil to a depth of eighteen inches or two feet, but the depth must depend upon their breadth, as in a broad border larger pots will be employed than in a narrow one. It is, perhaps, as well to remark that experience has taught us to employ the smallest pots possible for every plant grown. Thus we flower tiger lilies in 48 size, hyacinths in 60 size, tulips, three each, in 48 size, and our tritomas, now flowering superbly, are in 32 size. The material we employ for plunging in is cocoa-nut fibre refuse, but as this cannot everywhere be obtained, recourse may be had to tan, moss, and even sawdust, though the colour of the last-named material would be objectionable in some cases. To plunge in the common soil of the border is, of course, possible, but it is bad practice, for worms find their way into the pots and spoil the plants, the soil in the pots is apt to become waterlogged, and the plunging itself is a dirty and clumsy business. There are, of course, some clean, sandy soils, that are well adapted to the purpose, but these are quite exceptional. Box, and other live edgings, need not be injured by the plunging, and if the work is done with care, they will be greatly benefited. But of necessity, in taking the soil out of a bed or border to prepare it for the purpose, the workman would take care not to cut too close to the edging, and to slope the spade away from its roots. Our principal display is in beds and borders edged with Ransome's patent concrete stone, laid very securely on brick footings; but in another part of the garden, we plunge a collection of plants in borders edged with box, and the regular supplies of water the box obtains in consequence causes it to grow almost too luxuriantly. As our chief display is in an entrance-court heavily shaded by large trees, a live edging would be scarcely likely to thrive, and the stone is more tasteful and appropriate in such a situation.

The cultivation of the plants is a most important part of the business; *the* most important, in fact. To make a constant and frequently varying display, large numbers of plants must be grown in pots; and greenhouses, pits, frames, and open borders, and reserve grounds will be needed. Yet much may be done in a contracted space, and we imagine that there are some practical folks who would be puzzled to understand how we manage to make so many successive and brilliant displays as we do, having so little space at our command. Only get used to the system, and the practitioner will himself be astonished as much or more than any one else at its capabilities, and the wonderful manner in which it affords facilities for the employment of plants that would be useless otherwise. An example is before us in the bed of lilies and tritomas just referred to. It is edged with small plants of hydrangeas that were struck in May last, to make flowering plants next season; yet, as they stand,

there could be nothing better, and they are actually doing duty prematurely. The same plants, indeed, may be used a dozen times over in different combinations, and thus the space required to grow them is not of necessity commensurate with the number and extent of the changes made.

Good cultivation is of great importance, and it must be confessed that, to carry out the system thoroughly and grandly, demands more cultural skill and management than amateurs, or, we will say, than the majority of practical gardeners, possess. But it is not always necessary for the enjoyment of something to obtain the utmost possible in quality and quantity of that something. Many of our readers enjoy their gardens, though they know them to be less grand and costly than some other gardens. And so in regard to the plunging system, it may be adopted by the amateur without entailing upon him any excess of either labour or expense, and as he becomes accustomed to it, the scheme will expand in his hands, while seemingly the work will become less. In other words, it will be found comparatively cheap and easy when we are used to it, but perhaps attended with a few difficulties at starting. As an example of the way in which use makes things easy, we will refer to our display of last spring. We had then growing in the open field a large quantity of common yellow alyssum, white arabis, and white iberis. As work pressed hard, we could not spare the hands to pot them, so they were taken up with care and at once planted in the borders under the trees, that is to say "tucked in," and pressed firm as a groundwork for the tulips, and they never flagged even for an hour, being of course frequently sprinkled with water to assist them. When taken up after flowering, they were showing abundance of new roots, and they were at once transferred back to the open field and planted carefully, and are now great healthy plants, ready to flower finely next spring and undergo, if needful, a similar ordeal.

The principal work resolves itself into a regular system of cultivating pot plants. We begin now by purchasing hyacinths, tulips, and crocuses in quantity, giving preference to the cheapest sorts, as a rule, and, at all events, avoiding such as are really expensive. These are potted, in successional batches, in small pots, in soil consisting of half to two-thirds good rotten manure. We pot also lots of other bulbs, such as Scillas, Lachenalias, snowdrops, and narcissi, and all of them have cool frame treatment at the utmost; but the majority are plunged as soon as potted in the reserve ground, and are covered with not more than three inches of the plunge material, and so remain without water and without care until they are in bloom, and are transferred to their places for display, after which they get more attention, simply because they want it, which previously they did not. As these are removed, dielytras, polyanthuses, wallflowers, stocks (from seed sown in July and August), pansies, sweet Williams, and some pretty leafy things, such as the variegated-leaved lily of the valley, etc., etc., take their place. When these are past, geraniums and calceolarias are ready, and long before these are shabby come the liliums, the variegated-leaved willow-herb (loveliest of all plunging plants when starved in

pots), also the invaluable *Oenothera Fraseri*, which forms a bright green bush, two feet high, and produces fine yellow flowers, which are in perfection in the early part of the day. So we go until we find, in September, *Sedum spectabilis* (formerly called *S. fabaria*) ready, and that is followed by pompones, and those by ivies, hollies, *skimmias*, *euonymus*, wallflowers (for their lively greenness), junipers, *cotoneasters*, and a good fifty more fine hardy things that sparkle with green or variegated leaves, or glow with scarlet berries, or give such fine deep shadowy contrasts to the bright things, as Irish yews and *Arbor-vitæ* do. We have heard of *gay gardens*. We propose the formation, by the method here sketched out, of PERPETUAL GARDENS, and the spots that need them most are assuredly the entrance-courts to private residences, be they great or small.

S. H.

PLAGUES OF THE GARDEN.



IF you were to ask me to concentrate in the fewest possible words the best general advice on the subject of garden vermin, I should just say, "Grow your plants generously, and you'll be little troubled with vermin." It was among my very earliest observations on the behaviour of plants, and their aspects under various conditions, that starvation and confinement had much more to do with the production of vermin than dry weather and east winds, and the rest of the agencies that are accredited with the beginnings of plagues. If I go into a close dry house where cobwebs hang in festoons, and the plants are cumbered with yellow leaves which betray that they often want water and do not get it, I know that I shall find plenty of vermin, and I am never mistaken. Indeed, I take it to be a primary rule for gardeners of all classes that the best way to scare away vermin is to promote a healthy, vigorous growth of the plants that are infested, and if this is not done, the most potent nostrums in the world are next to wasted, and with them all the time and money expended in applying them. Take a few cases. Here are two useful plants, *Solanum capsicastrum* and *Solanum pseudo-capsicum*. They will grow in any kind of soil, and almost in any position, but then how do they differ in their looks according as you treat them ill or well. Keep them in the house all the summer, and you have long-legged plants always filthy with fly, and though they will probably bear abundance of berries, those berries will fall as fast as they ripen, and the end will be a grim disappointment. But alter the case, put the plants out in the month of May in a plunge-bed, shift them as they fill their pots with roots till they are in pots of eight inches diameter, and then stop; give plenty of water as required, and you will never see a single fly on either of them, but you will see berries in abundance; and when these are ripe it will be just the time to house them again, both to save them from frost and to render them useful for purposes of decoration. This case may be taken as the type of thousands. Green-fly, thrip, red spider—these

pests cannot endure fresh air and clean water. They prefer sickly plants, half-starved plants, stifling atmospheres, and dirt. Look through the stoves, and you will see a plant here and a plant there beset with fly or spider. In nine cases out of every ten, removal to a greenhouse will effect a perfect cure; the cooler atmosphere will restore the plants to health, and with returning health the insect plagues will fly.

Take another view of this preventive treatment. Here is a piece of roses; they have bloomed, and are evidently willing to grow; but see, has a miller been past and shaken flour over them? No; that dusty look is one of the most awful plagues of the rose-grower, and in spite of Gishurst, sulphur, and all the rest of the medicaments, it rages every year as soon as the ground to a depth of six inches gets quite dry. Let us give up the sulphuring, and the rest of the doctoring, and, as in the case just now stated, drive out the plague by promoting a vigorous growth. A thin layer of guano and wood ashes, or four inches of fat dung slightly pricked in with a fork, and a deluge of water, will cause an immediate production of plump green healthy shoots, and these healthy shoots will produce good flowers, and the mildew will never touch them. True, mildew does appear in damp cold seasons as in dry hot ones, but it is a most rare thing in any season, when the trees are really in vigorous health; it is almost invariably the consequence of debility, and a vigorous growth is the most certain preventive of its coming, and the best means of removing it when it has already made its appearance.

Now another word on preventive measures. There are certain subjects that are invariably seized upon by vermin, so that they can only be grown in very clean open spots, or when watched and tended with extraordinary care. Take phloxes, pansies, carnations, dahlias, and such soft-stemmed plants, and what can you do with them in an old garden where there are walls covered with ivy, old fences, hedge-rows, etc., etc., unless preventive measures are resorted to? Yet how simple it is to grow lettuces all the season through on the plots appropriated to such things, and how different is the case, then, as to the fortune of the plants. Yet this very simple proceeding is rarely thought of except by nurserymen, who, having to make their bread and cheese out of their pansies and phloxes, and other herbaceous plants, take care to have a lettuce to eat with it, and thus the phloxes and pansies escape. I would not grow any soft-wooded plant except groundsel or sow-thistle, if I did not grow lettuces also; and when the planting is all newly done, and the little lettuces from seed-beds and seed-pans are newly put out, the ground looks quite cheerful and pretty. By the time the lettuces form hearts, and begin their procession to the table, the proper subjects of the ground—the hollyhocks, the pinks, the pansies, the phloxes, the pentstemons, etc., etc., are all out of danger; their growth is too far advanced to be cared for by snails and woodlice, and besides, the lettuces have been used as traps from the first, and by searching amongst them every morning, thousands of snails, slugs, woodlice, and earwigs have been taken, for the benefit of the plants by their loss, and of the fowls and ducks by their gain, for the

more insect food (within reason) the more eggs, the more chickens, and the better the health of the stock.

To grow lettuces is the neatest and most certain of all preventive methods. While they are to be had, snails, slugs, woodlice, and earwigs will quit all else, and your choicest subjects will be safe. But when we take to searching amongst them for vermin, we are adopting remedial measures, which is an opening of the subject, and from this point I foresee that I may discourse at much length without wearing it threadbare.

The first remark I feel it my duty to make is one in reprobation of idleness. People cry out about losing this and that through the depredations of vermin; and they almost expect of a horticultural editor that he will not only tell them how to destroy the vermin instantler, but how to restore the dead plants to life, which, in spite of his near approach to infallibility, is a trifle too much for him. Your plants are attacked by vermin, are they, my dear friend? Well now, why don't you catch the vermin, and then screw up your courage to the sticking point and kill them. You pretend you don't know how, but the fact is you are too idle. At what hour did you rise on those mornings last week when the ground was wet with rain, and all the snails in the parish were taking their walks abroad on tiptoe, and were laughing audibly because they knew you were tucked in and fast asleep in a hot room, while they were enjoying the delightful coolness, and were gorged to the full with the tender leaves of your lilies and pansies. I can tell you I was up at four o'clock on those cool mornings, and I caught such a potful of fat snails before six, that my man Docket, who is one of the boldest fellows in creation, was actually frightened, and wanted a holiday to recover himself. Give me time, and I'll trap every living varmint in a garden, no matter what may be its size or age. If I am beaten, it will just be because time fails me, but there is some difference between being beaten that way, and doing nothing at all. In the first case, a man may cry out for a patent snail-catching and killing machine to work by steam; in the other case, he has no right to cry at all, not even for a pound of salt or a lettuce to his bread and cheese. Do let us have a little work before we have much grumbling.

But do you want to catch the vagabonds? Go to work in this way. Lay little heaps of lettuce-leaves in cool, quiet places, and examine them at dusk and daybreak. Catch and kill in any way you please; a pot of brine is a very good bath for the purpose. Lay about also in the neighbourhood of choice subjects of which snails are fond, nice young cabbage leaves slightly smeared with rank butter; catch and kill as before. Lay about in cool quiet spots small heaps of fresh brewers' grains; catch and kill as before. Where woodlice abound, take some *dirty* flower-pots (always combine a little dirt of some sort with vermin traps, for vermin are extravagantly fond of dirt), and fill these dirty flower-pots with dry moss and crocks mixed together. Place them where the vermin abound, and cover each with a tuft of dry moss. Every other day proceed to catch and kill in this simple manner. Have a large

pailful of boiling water. Take up a pot quietly, and quickly shoot out its contents into the water. You clear away your enemies by thousands in this way: there is no trap to equal a dirty pot filled with dirty crocks, and dirty (but dry) moss. If there arises any peculiar difficulty, such as a choice plant being eaten nightly, and you cannot catch the marauder, take a slice of apple, and surround it with dry moss, in a flower-pot. Take also a slice of potato, and use it in the same way. Place these two pots, one on each side of your delicate subject, but at a distance of six inches or so, and at dusk and dawn turn out the contents of each pot quickly, and it will be a strange thing if the marauder is not bagged. As for earwigs, they may be trapped in the same way as wood-lice; but they like to *go up* to their traps, while the wood-lice like to go down. At the first opportunity that offers, I shall say a few more words on this subject, and I am anxious for the opportunity to occur, because I can give a grand rule for the destruction of the larvæ of the daddy longlegs, which are likely to be in full force as soon as the eggs are hatched, that the flies are now laying everywhere.

Now, one word as to medicaments and nostrums. To despise them is simply foolish, though I confess that we rarely use anything in the way of washes and preparation. Three good things, however, are always to be found in our garden. First in importance I place the "London ground tobacco," which consists of tobacco and sulphur, and is allowed by Government to be sold duty free. Wherever a powder can be used, this is certain and quick death to caterpillars, green-fly—in fact, any soft-bodied vermin; and it is so cheap that it may be used in the kitchen-garden to clear caterpillars out of a plot of cabbages instantly, and it is quite harmless to vegetation. The next good thing is "Fowler's Insecticide;" this is used as a wash, and is especially useful for syringing the undersides of the leaves of plants. We have lately had to use it to clean a house of cucumbers, and to remove American blight from apple-trees; it was effectual in both cases—in fact, admirable. The third is the "Aphis wash" of the City Soap Company. This we find an admirable thing, for roses especially when we can dip the shoots in it; the aphides die instantly, and not a leaf is soiled. As to the mode of mixing and applying these things, directions are sent with them, and as to obtaining them, seedsmen and druggists everywhere keep them, or should do so.

S. H.

KEEPING A SMALL GREENHOUSE GAY.



AN old Subscriber says, I should feel obliged for a little assistance and advice respecting the management of my small greenhouse next year. This season and last I had it supplied with geraniums, petunias, and similar things, but I should like a change another year, as there is too much sameness between the plants in my greenhouse and those in the flower-beds. I always make up a cucumber-bed

in the spring, and have a two-light frame also. Could I not turn out my ordinary plants in May or June, and have a change in the greenhouse by giving less air and more moisture—something like a stove? If this be practicable, will you kindly assist me with a little list of suitable things for the summer. My house is only very small (eleven feet by eight), so the list must correspond. A few details of management, if you could spare the room, might perhaps be of use to others as well as myself.

It often happens that a greenhouse may be used as a stove, or at least intermediate house, during summer; and indeed we have grown so many stove plants in greenhouses that we would never hesitate to go into stove subjects after clearing out the house in May. But it is not the sort of thing to recommend to amateurs, because of the many risks that attend it—stove plants being subject to thrip, mildew, and all sorts of plagues, if not well treated; and a little too much water, with too little heat, might during a time of dull weather make a wreck of the whole affair. But with a cucumber-bed and a two-light frame, a grand assortment of subjects might be got up for summer decoration: say, to begin with, balsams and ornamental gourds; a few of each will fill this little house, and make it a delightful scene. They would need to be sown in March, and placed on a hot-bed; be pricked out and grown on in frames over dung-heat till the middle of May, and then be taken into the house. The following would be suitable in style for this house: *Abroba viridiflora*, *Cucurbita digitata*, and *C. grossularia*. Others of the smallest-habited varieties could be added but there would not be room for many.

Another style of decoration would be a small collection of zonale geraniums—say two dozen in all, and the most suitable are Herman Stenger, Eugenie Mezard, Amelina Grisau, Madame Vaucher, Mdle, Martha Vincent, Beauté du Suresne, Rose Rendatler, Lucien Tisserand, Monsieur Galland, Amy Hogg, Titian, Richard Headley, Mrs. Spencer, Dr. M'Donnell, Cybister, Black Dwarf, Pink Pearl, Mrs. Pollock, Sunset, Flower of Spring, Cloth of Gold, Annie, Alma, Daybreak, Oriana. Unless "Old Subscriber" practises bedding on a large scale, there would be as great a change from the colours seen out of doors as could be obtained by much searching.

Still this may not suit his taste, and here is another selection: *Sedum Sieboldi*, to be potted in rich but very gritty porous soil, in not less than an eight-inch pot, and suspended from the roof on a level with the eye. *Gazania splendens*, treated in the same way. The large white-flowered ivy-leaf geranium, the same. *Thunbergia aurantiaca*, the same. On the stage the following, tastefully grouped for effect: *Tritonia crocata*, requiring to be potted in peat in autumn, and kept in a frame till wanted. *Bambusa Fortunei variegata*; must be grown in poor sandy soil, and may be wintered in a frame. *Isolepis gracilis*, nearly hardy; grow in peat, and give abundance of water all summer; keep in a shady place. *Lilium lancifolium*, *auratum*, and *cordifolium*; pot in sandy peat in autumn, and keep in frame safe from frost till wanted. *Linum trigynum*; grow in light fuchsia compost; it will flower in June, and be acceptable; it is nearly hardy. *Plumbago Larpentæ* may be kept to any size by pinching back and

striking a few cuttings occasionally, so as to have small plants to take place of those that become too large; any light soil will suit it, and almost hardy. *Sempervivum arboreum*; the purple-leaved variety makes a most elegant and characteristic plant; keep in as small a pot as possible, soil good but gritty, plenty of light, and very dry all winter; this is nearly hardy, but the white-leaved variety is very tender. *Tropæolum tuberosum*; keep in dry sand all winter, pot in April, and placed in a warm position with very little water till growing freely; train as you please; soil light and rich, plenty of sunshine. *Vallota purpurea*, may be kept in frame all winter; ought to be always growing; repot after flowering in half loam and half peat; give abundance of water when growing freely, not much all winter. In spring a few *Begonias* could be bought for a trifle, and would make a variety. A few of the free-flowering *Mesembryanthemums* are admirably adapted for small houses, and there are many nearly hardy variegated plants available. And how strange it is that proprietors of small houses will not grow succulents, such as *Rochea falcata* and the showiest of the cactuses.

W.

HYACINTHS.

BY JOHN WALSH.



FOR the next month or six weeks we shall be inundated with catalogues of hyacinths and other Dutch bulbs. Therefore, a few words about cultural matters, and a selection of a few distinct varieties, will not be altogether out of place at this season. I will be as brief as possible, but so many of our readers indulge themselves with a collection of these bulbs, and no conservatory can be kept in first-rate order through the early part of spring without a few, it will not be advisable to skip the subject for the sake of brevity. To make this paper as useful as possible, I will first say a few words about

BUYING THE BULBS.—And I feel bound to say, that more importance ought to be attached to this part of the subject than is usually the case. It is hardly worth while for me to say, that unless the cultivator has solid, thoroughly matured bulbs to deal with, no amount of skill will induce them to produce first-rate spikes of flowers: everybody knows that. I have not a word to say against any one having a floral display at a cheap rate by means of buying the cheap selections at so much per hundred; but what I would say is this, It is useless to expect spikes from these equal in size to those for which a good price for the bulb was paid. I know several gentlemen who buy them in this way, and then blame their gardener for the inferiority of the bloom. Others go to paltry places, pay full price, and then get inferior articles. Here the poor gardener steps in for it again. This class of dealer is not above putting all failures down to the gardener's ignorance of their proper management. This is not written for the instruction of those who employ gardeners, so

much as it is for those who manage their own gardening affairs. But, as many of my friends who keep gardeners read the *FLORAL WORLD*, there can be no harm in mentioning these matters, and it may probably be the means of preventing any misunderstanding by and by when the hyacinths come into flower. I would say, go to a respectable dealer, not necessarily a large one, for I believe quite as much honesty is to be found amongst men in a small way as there is amongst those with large concerns. Go early in the season, and as soon as the first importation arrives, then you can make sure of having the pick of the best bulbs, that is if the best price is paid. There need be no fear then of their having been exposed several weeks in the shop windows, a process which does anything but improve their blooming qualities. The best bulbs are those which are quite solid, and feel heavy when handled; these are much better than others that are larger, but soft and light. It does not follow because some varieties are entered in the price-list at half a guinea, that the bulbs of these are better than others which are entered at ninepence: the price is regulated by the newness and rarity of the variety more than it is by the size and quality of the bulbs. The last consideration very seldom makes more than a few pence difference in each bulb. For instance, suppose certain varieties to be offered for twelve shillings per dozen, you must expect to pay fifteen if you go and pick out the very best; and if you are satisfied with inferior bulbs, you may get them for nine. But I would say, don't expect to get such good spikes from bulbs at the last price as from the first, or blame the nurseryman for supplying you with an inferior article.

CULTURE IN POTS.—After disposing of the buying part of the question, of which I have said more than I originally intended, we will consider a few cultural details; and as growing them in pots is of the most importance, we will deal with it first. As it is not advisable to expose the bulbs to the drying influences of the air any longer than can be helped, they ought properly to be potted immediately they come to hand. If large, full-sized bulbs, one in each six-inch pot is quite sufficient, but smaller ones may be potted at the rate of two or three in each pot; but for general work, nothing beats growing them singly.

The first part of this branch of the subject which claims our attention at this moment is the preparation of the soil. Hyacinths are not so particular as to what they are potted in as some plants; they will grow in cocoa-nut refuse, moss, and water, besides the ordinary compost of loam, etc. They produce tolerably good spikes grown either way; but to have them in the highest perfection, nothing can be better than good turfy loam, used rough, and decayed manure, from an old hot-bed, in equal parts. Well rotted cow-dung will do equally well in place of the hot-bed manure. Grown in a mixture of this kind, there is something to support the plants when growing, which is not the case when grown in either of the above-mentioned materials, as the plants have to derive nearly or quite all its support from the nourishment laid up in the bulb the previous season. The soil being prepared, the pots should be

well washed, if they have been used for growing plants previously, and a few pieces of crock placed in the bottom for drainage. The soil should be filled in rather firmly, first placing a few rough pieces over the crocks, to prevent the drainage getting choked up, and its action impeded. Each bulb should be about two-thirds beneath the surface, and should be placed in its position as the pots are being filled with soil. A very common way, and I confess to have done it myself, is to fill the pot with soil, and then press the bulb down into its place. When this is done, the soil immediately under the base of the bulb is made hard, and when the roots begin to push, they are unable to penetrate the soil so readily as is desirable. The consequence of this is the bulb gets lifted up out of its place, and is unsteady when it begins to grow. It is impossible to make them firm again, after growth has commenced. After the potting is completed, stand the pots out of doors, on a hard bottom, through which the worms will be unable to penetrate. Place a small pot over each bulb, to keep the ashes from the crown; but, before doing this, give them a liberal soaking of water. Fill the spaces between the pots with coal ashes, and then cover with six or eight inches of the same material. For my own part, I don't like rotten tan, or anything else that will encourage organic life. The object for covering them is to promote root action before the growth of the top, and it should be remembered that all growth which takes place before there are roots to support it, is at the expense of the bulb.

No further attention will be necessary to these until January, when they must be uncovered, and, after cleansing the pots, they should be placed in a cold pit. It will be necessary to cover the lights for a short time, until the young growth is able to stand the full light. Protection from frost must also be provided, when necessary.

For blooming in March, the bulbs must be shifted into a house, which is kept at a temperature of about 60°, early in February, and have plenty of light, and as much air as the weather will admit. This will be very little at this season. And when the plants are in full growth, give plenty of water at all times, and weak manure-water twice a week. There are various ways of making manure-water; but the simplest, and equally as effective as any with which I have had to do, is guano, mixed with rain-water at the rate of half an ounce to the gallon, or one ounce to every three gallons. Force gently, or the result will be long, lanky foliage, which will fall about in all directions as the plants are shifted from place to place. The object of the cultivator ought to be to grow them sufficiently stocky for the foliage to remain in its proper position without support. Those intended for blooming earlier, must be taken out of the plunge-bed in December, and, after a few days' stay in the cold frame, removed to the forcing-house or pit. For early work, it is an advantage to plunge the pots in a mild bottom-heat, if it can be managed, so as to give the plants plenty of light at the same time. Those intended for flowering later in the season than March, may be grown in the cold pit, and removed to the greenhouse when the flower-spikes begin to push up, no artificial heat whatever being

required. For amateurs, who do not go into bulb-growing largely, this is the best way. Naturally enough, the flowers are finer, and last longer in perfection, than those subjected to hard forcing.

CULTIVATION IN GLASSES.—Very few words will explain this interesting and elegant way of growing them for indoors. The glasses have a much prettier appearance than pots, but the flower-spikes are never so good. To sum up the necessary details quickly, I will just observe that the glasses should be filled with rain-water, to within a distance of the rim that will admit the bulb being placed in its proper position, so that its base shall be quite close, without actually touching its surface, until the roots get into action, when this precaution is unnecessary. The glasses will require filling, in proportion to the quantity taken up by the plant. The water will only require changing when it has a disagreeable smell, and becomes offensive. After the bulbs are placed in their proper positions, the glasses should be placed in a cupboard until the top begins to push, and the glass full of roots. This will generally take place in about a month or six weeks. After this stage they will be required to be brought into the light, keeping them in a dark corner of the room for a few days, and finally bringing them into the full light of the window, where they must remain. Give a little air, whenever practicable, and remove from the window in sharp, frosty weather, to prevent their getting frozen. The kind of glass I must leave to the tastes of my readers; but see that supports are furnished with them, to keep the flower-spikes from swaying to and fro.

CULTURE OUT OF DOORS.—I could dismiss this with a very few words, and say, treat them as our Editor does. He grows them in pots, and plunges in beds of cocoa refuse just as they are bursting into flower. I regret that the whole of the readers of the *FLORAL WORLD* could not see the large jardinet in his garden, as I saw it several times through the last spring, furnished as it was full to repletion, with magnificent spikes of this beautiful flower. There is no mistake but what I fully appreciated the honour conferred upon me, by being allowed to have a peep at them, and have considered myself a very enviable person ever since. Beds intended for hyacinths should be dug deeply, and have a good dressing of manure directly the summer occupants come off. Light or sandy soil is best, but heavy soil can be easily corrected by the addition of a dressing of leaf-mould and river sand. Three to six inches is a good depth for planting the bulbs. A dressing of three or four inches of leaf-mould or cocoa-nut refuse over the surface will assist to protect them from spring frost as they begin to push towards the surface. I generally secure the spikes to neat sticks, to prevent the wind and rain beating them all out. Considering their beauty, and the length of time they remain in good condition, they fully deserve the little trouble this operation occasions.

After glancing thus briefly at the various cultural details, which I have found necessary to observe, after many years' close acquaintance with them, I will turn my attention to a selection of the best kinds. I should properly speak in the plural, for I intend making

several selections. First, we will make a selection for exhibition, the prices of which range from one to fifteen shillings for bulbs of average quality. Then we take those which shall not exceed half-a-crown each, but I will take care that a few only shall exceed a shilling; many of the best can be had for ninepence.

And lastly, I will give a short list of cheap kinds for planting out of doors, which can be had for four and five shillings per dozen, or from twenty-five to thirty-five shillings per hundred. Perhaps I ought not to mention anything about the price, but I must be practical in my remarks, or keep silent, and I know that questions of finance are of importance to many of my readers. I can assure my readers that the utmost reliance can be placed upon the undermentioned selections. They are compiled from notes taken in the spring at the various exhibitions, and elsewhere. I did intend to append a short description; but as that would take up too much space, I will content myself by indicating the colour or class which they come under for exhibition.

SINGLE RED.—Cavaignac, Florence Nightingale, Garibaldi, Macaulay, Princess Clothilde, Solfaterre, Von Schiller.

SINGLE LILAC AND MAUVE.—Prince of Wales, Haydn.

SINGLE WHITE.—Alba Maxima, Grandeur à Merveille, Mirandoline, Mrs. James Cutbush, Mont Blanc, Snowball, Tubiflora.

SINGLE BLUE.—Argus, Baron von Tuyll, Charles Dickens, Grand Lilas, Lord Palmerston, Marie.

SINGLE BLACK.—Feruck Khan, General Havelock, Prince Albert.

SINGLE YELLOW.—Bird of Paradise, Ida.

DOUBLE RED.—Koh-i-Noor, Lord Wellington, Princess of Wales.

DOUBLE BLUE.—Comte de St. Priest, Garrick, Laurens Koster, Van Speyk.

DOUBLE WHITE.—Anna Maria, Prince of Waterloo.

In giving the list for ordinary cultivation, I will just observe that nearly all the single varieties—in fact, all that I shall name—will do for growing in glasses; therefore, I need not mark any. I should not advise the double varieties to be grown very extensively. The single ones are easier managed, and are, to my way of thinking, far more beautiful.

SINGLE RED.—Amy, Cavaignac, Florence Nightingale, Gigantea, La Dame du Lac, Le Prophète, Lord Wellington, Madame Hodgson, Norma, Robert Steiger, Sultana Favourite, Von Schiller.

SINGLE WHITE.—Alba Maxima, Grandeur à Merveille, Crown Princess, Mirandoline, Mont Blanc, Queen of the Netherlands, Seraphine, Voltaire.

SINGLE BLUE.—Argus, Baron Von Tuyll, Charles Dickens, Couronne de Celle, Grand Lilas, Leonidas, Orondates, Raphael.

SINGLE BLACK.—Mimosa, Prince Albert, La Nuit.

SINGLE YELLOW.—Anna Carolina, Koning Van Holland, Victor Hugo.

DOUBLE RED.—Bouquet Royale, Lord Wellington, Princess Royal, Waterloo.

DOUBLE WHITE.—La Tour d’Auvergne, Prince of Waterloo, Sceptre d’Or.

DOUBLE BLUE.—Bloksberg, Comte de St. Priest, Laurens Koster.

For out-door work, the following can be had for the price named above, which is only a few shillings per hundred more than is charged for mixed kinds, and the cultivator has the advantage of knowing how to arrange his colours when planting the bulbs. These, of course, will not be quite so large and plump as if the ordinary price was paid. This is of little consequence. The size of each individual spike is not of so much importance as having fine masses of colour:—Amy, single, bright crimson; Anna Maria, white, double; Baron Von Tuyl, deep blue, single; Charles Dickens, light blue, single; Grand Vainquer, white, single; Heroine, yellow, single; Herstelde Vrede or Paix d’Amiens, deep red, single; L’Ami du Cœur, red, single; Lord Wellington, blue, double; Madame Hodgson, pink, single; Orondates, porcelain blue, single; Waterloo, bright red, double.

FLOWERS FOR CHRISTMAS.

A PAPER FOR THE LADIES.

BY J. C. CLARKE,

Head Gardener at Cothelston House, near Taunton.



KNOWING how delightfully acceptable are a few flowers at Christmas, I have set out with the intention of telling the fair readers of these pages what to get and how to grow them, feeling pretty confident that, if they set about it at once, and follow out my directions, they need not despair of success to provide flowers for Christmas. If we go about it with a little spirit and enthusiasm, it is not an expensive or weighty undertaking. The only drawback in the matter is, that we have not a wide field of subjects to choose from—I mean, of course, such subjects as will grow and flower in rooms and windows, with only the care and attention of the goodwife of the house, who must be head gardener, and responsible for all that happens. For a subject to begin with, we cannot have a better than the little *Van Thol Tulips*. In the first place, they are cheap, of easy culture, and with a moderate amount of care they are sure to succeed. There are various ways to grow them; there are small tin trays manufactured on purpose for growing small bulbs. These have perforated bottoms, standing in an outer tray to catch the water. These are admirably adapted for the growing of tulips, crocuses, snowdrops, etc. These trays may be either be filled with soil, or sand, or even moss, to plant the roots in; but some prefer growing them in pots, which, for finer blooms and richer colours, are much the best; while others are content with the use of a common soup-plate, and

in these I am pleased to record the fact that I have seen such things as I have just named admirably managed—a credit to the fair cultivator, and an unfailing source of pleasure to all beholders. But as it is impossible for me to fix upon any one subject that would suit both the taste and convenience of the reader, I will just remark that whatever description of vessel is used, it should be light and portable, that, when necessary, it may be removed from one position to another without fatigue or injury. If the tin trays above alluded to are used, fill them to within half-an-inch of the top with soil or sand (the former would be preferable), and when the bulbs are planted, cover over the whole a layer of green moss for a proper arrangement in planting. I must leave each individual taste to decide, but, were I about to furnish one of these, I should plant a centre of single *Van Thol Tulips*, scarlet and yellow, and then a ring of *Purple Crocuses*, and an edging of *Single Snowdrops*. If pots are used, the six-inch ones will be large enough. Of tulips, in each of these, place five bulbs, of crocuses seven, and of snowdrops twelve. As soon as any of the above are planted, give them a gentle soaking of water, and place them at once in a warm, shady place out of doors, and protect from heavy rains. From observations which I have made, I have found that the principal cause of failure in securing the above flowers at Christmas is that people do not begin soon enough; they leave it alone to within a few weeks of the time, and then complain if they do not succeed; and, what is often the case, blame those who have done their best to instruct them, because their own apathy must not be thought of or questioned.

Those who really desire these bulbs in flower at Christmas must give their orders at once to their seedsman, and as soon as they come to hand they should be planted; for, if planted later than the 18th of September, the new year will be here before they show a flower. The *Helleborus niger*, or Christmas Rose, is another fine subject which can safely be depended upon if taken up in November and potted, and placed in a south window. And it is very interesting to watch the changing of each individual flower from white to pink, and then almost to a green. Nice plants of these can be purchased for a shilling. They like a rather peaty soil. Then, again, there is the *Primula sinensis*, both pink and white; they are not expensive, and, when liberally treated, with a warm and moderately airy position in the greenhouse, will continue to flower through the dullest months of winter. To these I might add some of the border varieties of the *common Primrose*, for, if taken up and potted at the end of November, in light soil and well-drained pots, a south window might be made quite gay. If a few of the *common wild Primroses* are treated the same way, and intermixed with them, the result will be quite a new pleasure. I happen to know a rural village in the country where this kind of window gardening is vigorously followed up every year, and attended with very pleasing results; and although it is only a village post-office, yet through all the earlier months of the year this window is always gay, many of our wayside flowers adding a peculiar charm to it. To this list I may add the *Winter Aconite*, which is of very easy

culture, only requiring to be potted in October, and grown on like the tulip, etc.

The next I shall name is an old border favourite, known in these times but to few, and imperfectly appreciated, perhaps. I allude to the *Tussilago fragrans*. It is not altogether a pot plant, but for our purpose here it is. There need be no trouble to grow it, for its natural season of flowering on warm sheltered borders is January, so that, by potting up a few some weeks before the time we want it, we can safely reckon upon securing its flowers at Christmas; but it is neither brilliant in colours nor ornamental in foliage, but its fragrance, as its name denotes, is highly valued. At this dull season of the year, all the directions that are necessary for me now to add may be given in a few words. At the close of October, the tulips, crocuses, snowdrops, and primulas, must receive protection from cold nights and heavy rains; and if they are at once put into their winter quarters, it will assist them materially. Great care will be required in watering, that they be not saturated. Neither must they be kept dust-dry, but uniformly moist; and occasionally they should be sprinkled overhead on a mild day. Avoid a close, confined atmosphere in dull, muggy weather, for such weather is a fruitful source of mildew, if there is not a continual movement by daylight in the air. Perhaps this applies chiefly to plant-houses, but the remark here is not altogether out of place.

I am aware that a more extended list of plants could be given to furnish flowers at Christmas; but my object has been to name only those that any fair reader could procure and manage with a little trouble and expense, for it is from such a source that the greatest pleasure is derived.

A GARDEN OF GAY SPRING FLOWERS.



THE writer has carefully looked over his own collection of thousands of herbaceous plants, which include many of the commonest as well as many of the rarest species and varieties, and has bestowed some care in preparing the following list of kinds that are among the most beautiful of the whole, easily grown, and *all* actually procurable in this country. He knows that some are scarce, and almost hopes they may continue so, for in these days people do not seem to value things that are common and cheap, though their beauty may be such as no pencil can paint, and no pen describe. He knows that in many horticultural works professing to be "practical," species and varieties are enumerated that no one can procure—that, in fact, have never been introduced to the country; and, in giving this list, the writer has considered both the usefulness of the plants named, and the possibility of procuring them; and he can say, from actual knowledge of the case, that there ought to be no great difficulty in obtaining any of them.

Adonis vernalis,* the Spring Adonis, native of Europe.—Useful border plant.

Alyssum saxatile,* the Rock Madwort, and *A. saxatile compactum*.—Producing dense masses of golden flowers.

Anemone apennina, the Mountain Wind Flower, native of Britain.—Fine clear blue, easily done, and very useful.

Anemone sylvestris, the Wood Anemone, native of Germany.—Free May-flowering species, easily grown, white flowers.

Aquilegia alpina, the Alpine Columbine, native of Switzerland.—Exquisite if true.

Arenaria balearica, the Balearic Sandwort.—Forms a very dwarf and pretty little plant in light soils, as it becomes covered with plenty of starry white flowers, and the whole is not more than an inch high, or thereabouts; but it is not first-class.

Asperula odorata,* the Odorous Woodroff.—A common British plant, which should be seen in all woods and shrubberies; so much valued, too, for its fragrance when dried.

Aubrietias.—All the varieties, *Grandiflora* for choice; but it is scarcely fair to pick where all are good.

Aubrietia deltoidea.*—*Grandiflora*, *Mooreana*, *purpurea*, and *Campbelli*, are varieties or species grown in this country. The last-named is the best.

Bellis perennis hortensis.*—Double daisies of several colours; are most useful for spring bedding.

Caltha palustris, Marsh Marigold.—A common British plant, but not surpassed for brilliancy of colour; grow in bogs or other moist places.

Campanulas.*—The best are *carpatica*, both white and blue varieties, *persicifolia* and *persicifolia alba*, *pumila*, and *pumila alba*—for a beginner at all events. They can hardly be called spring flowers, but, coming in to fill up the void between spring and summer, are as useful as any.

Cerastium grandiflorum and *incanum* are also free-flowering kinds.

Cerastium tomentosum,* the Woolly Mouse-ear Chickweed.—This common edging plant, if undisturbed, makes no small attempt at a good show of flower in May.

Cheiranthus ochroleucus, the pale yellow Wallflower, native of Switzerland.—Clear yellow, dwarf and striking. Divide in autumn, and get a stock, as it is about the very best of the genus.

Clematis montana,* the Mountain Traveller's Joy, native of Nepal, *var. major*.—A magnificent kind for covering walls, arbours, roofs, etc., producing large white flowers freely in May.

Crocus susianus, the earliest; *luteus*,* the common yellow, and perhaps the best; *vernus*,* the blue, and its numerous fine varieties, amongst the best of which are *Sir W. Scott* and *La Majesteuse*.

Dianthus alpinus, the Alpine Pink, native of Austria.—A rare and beautiful plant, but the finest of its genus. Large fine flowers, on stalks sometimes little more than an inch high. It flowers late in May, and should be grown in fine sandy earth or peat, with full exposure, and plenty of water in dry weather.

Dianthus Fischeri, Fischer's Pink, native of Russia, is another gem worth a good deal of trouble; so is the Cheddar Pink, *D.*

cæsius.—Those who succeed with these, and get a little stock of each, sufficient to make a little “show,” or to spare one to a friend, will undoubtedly derive much gratification therefrom.

Dianthus petræus, the Rock Pink, native of Hungary.—Charming dwarf species, with large flowers; not quite so difficult to do as *D. alpinus*, but had better be planted in sandy loam, and rather fully exposed. As its roots form a sort of thin surface mat, it should be pegged down in its place when planted, and taken great care of till quite rooted.

Dielytra eximia, the choice Fumitory, native of North America.—Graceful in habit and brilliant in flower; it is dwarf, too, and a desirable plant in every way. *D. spectabilis*.—Well known and indispensable.

Dodecatheon Meadia, American Cowslip.—One of the loveliest ornaments of our gardens if well grown, and that is not difficult. The varieties *albiflora*, *elegans*, *cælestina*, and *gigantea* are all beautiful, and well worthy of more extensive culture.

Doronicum caucasicum, the Caucasian Leopard’s Bane, is a useful and showy yellow-flowering plant, well suited for the edges of shrubberies or the mixed border.

Erica carnea, the Flesh-coloured Heath, native of Europe.—There is no more useful plant for the spring gardener, especially for an edging to a bed of rhododendrons.

Erythronium Dens-canis, the Dog’s-tooth Violet, and its varieties are of exquisite beauty.

Fritillaria meleagris, a graceful Britisher, with its fine white variety, should be in every collection of spring flowers.

Galanthus plicatus,* the Crimean Snowdrop.—Twice as large and as easily grown as the common one.

Galega officinalis, the Medicinal Goat’s Rue.—Useful for association with the perennial Lupin; and *G. orientalis*.

Genista pilosa and *prostrata*, the Downy and the Prostrate Brooms, may also be recommended.

Genista tinctoria, the Dyer’s Broom, is a very dwarf and useful little shrub, small and neat enough for the borders, etc., and producing bright yellow flowers in great profusion.

Gentiana acaulis, the Stemless Gentian.—The old and popular “blue Gentian” of country gardens; a grand thing where it succeeds. It must be left alone for years.

Hepatica.—Every kind you can lay hands on.

Iberis corifolia, the Coris-leaved Candytuft, native of the south of Europe.—Compact and showy; fine.

Iberis correaefolia,* the Correa-leaved Candytuft.—Still larger and better.

Iberis Garreviana,* Garrex’s Candytuft, native of Piedmont.—An excellent kind, fine and showy. The four kinds named are beyond praise, and far beyond their neighbours.

Iberis saxatilis,* the Rock Candytuft, native of the south of Europe.—Larger, whiter, finer.

Iris Florentina,* the Florentine Iris.—Very delicate white, with blue shadings; strong and hardy free-flowering kind.

Iris Germanica,* the German Iris, and its numerous varieties, take a kingly place among May flowers, and are certainly capable of producing more gorgeous effects than any we have yet seen.

Iris ochroleuca, the Pale-yellow Iris.—Tall and fine distinct kind; does well among shrubs.

Iris pallida, the Pale Iris.—A noble species, the largest in cultivation.

Iris pumila,* the Dwarf Iris.—A few inches high, with large blue flowers. There are several varieties—one deep purple. It is an excellent plant for a peat soil. The Irises have yet to be done justice to as ornamental plants. There are *no* flowers more beautiful, not excepting orchids, to which they are related as well in beauty as in the natural arrangement.

Linaria alpina, the Alpine Toad-flax.—Purple and orange; charming little plant, well suited for choice rockwork, etc. It forms neat glaucous tufts, and on light moist soils is a great ornament.

Lupinus polyphyllus,* the Many-leaved Lupin, is a noble plant for May and June, growing and flowering so vigorously as it does in good soil, though satisfied and well-behaved in any.

Menyanthes trifoliata, the Bog Bean.—A fine thing to plant in a pond, or the basin of a fountain, or at the base of a rockery, where there is much moisture.

Myosotis alpestris.—This requires a little more attention than either of the following, and is not so easily grown; but it is a gem of the first water, and had better be quartered with the rarest. Be sure, if you seek it at all, to obtain it *true*.

Myosotis montana, the Mountain Forget-me-not, is a fine species, only seen in perfection in moist fissures of rockwork, or in moist but sandy soil; then it is of surpassing beauty.

Myosotis sylvatica, the Wood Forget-me-not, is a beautiful British plant, which will well reward those who grow it on a light yet moist soil. It must be sown annually—say in June—and the plants will flower the following April and May.

Narcissus bulbocodium,* the finely-coloured “hoop petticoat” Narcissus, is one of the best of the family.

N. odoratus, the Fragrant Narcissus.—Of a fine yellow, and very sweet.

N. poeticus, the “Poet’s Narcissus.”—Sold by millions in London during its season of bloom, and well worthy the particular honour.

Omphalodes verna, Venus’s Navel-wort.—Forget-me-not like, very early, and quite hardy; foliage very pretty.

Orobus vernus,* the Spring-flowering Bitter Vetch.—This you can hardly have too much of. In arranging all these plants, it is necessary to know their heights; they can be ascertained in most cases by reference to such a catalogue as Henderson’s, or any good botanical work.

Papaver orientale,* the Oriental Poppy.—Very brilliant; showy, but perhaps a little coarse.

Pæonias.*—Many or any—*tenuifolia fl. pl.* being particularly distinct and dwarf.

Pentstemon crassifolius, the Thick-leaved Pentstemon.—Neat evergreen shrubby habit, with pretty blue flowers in May; a distinct and excellent plant.

Phlox frondosa,* the Leafy Phlox.—Is another good one; but second to none is *subulata*,* which on rockwork is sometimes “all flower.” It may be used with great advantage, too, in small beds for the spring garden.

Phlox Nelsoni, Nelson’s Phlox.—White, with lilac eye; dwarf and massy in habit, and hardy; an exquisite little plant.

Phlox verna, the Spring Phlox.—Another choice thing among dwarfs; it grows, however, from four to six inches high, generally about twice as tall as *P. Nelsoni*.

Primula auricula.*—The common Auricula of sorts, if grown as well in gardens as it is often to be seen (comforted with tea-leaves) down areas, etc., in London, would be very useful, as indeed it already is in many places.

*Primula vulgaris plena var.**—The varieties of double Primula—white, purple, lilac, sulphur, and violet—when well grown, almost bear away the palm among spring flowers. But they are difficult to get now—at least as much so as old mutton; and those who have a stock would do well to increase and preserve it. In some pleasant country places, where cottage gardening is much practised, some of the best varieties might be easily picked up.

*Primula polyanthus** is of easier growth and more easily raised than either of the foregoing, and, as there are many beautiful varieties, it should be extensively used, especially in shady borders, etc.

Parmica, or *Achillea Clavennæ*, is a first-class silvery-leaved plant, useful for edgings, etc., in the summer garden, and useful also in spring, as it is hardy, and produces white flowers in May.

Pyrethrum roseum,* the Rosy Feverfew.—Some of its many fine varieties, single and double, are well worthy of cultivation.

Ranunculus aconitifolius, *fl. pleno*, the Aconite-leaved Buttercup, native of Europe, “The fair ladies of France.”—Very pretty white double; does beautifully in moist and rather shady places.

Ranunculus acris, *fl. pleno*, double-flowering Acid Crowfoot.—Pretty showy double yellow, easily grown.

Ranunculus amplexicaulis, the Plantain-leaved Buttercup, native of the Pyrenees.—Fine white kind, very distinct in leaf and habit; dwarf.

Rondia epipactis.—A charming thing for its yellow disks in early spring.

Saponaria ocyroides and *pulchella*, Perennial Soapwort.—Both useful, pink-flowering plants, well suited for rockwork, etc.

Saxifragas.*—Many; say *pyramidalis*, *Andrewsii*, and *Stansfieldii* for a beginning.

Scilla campanulata and *S. hyacinthoides*, Bell and Hyacinth Squills.—Larger and later than the following.

*Scilla Siberica** and *trifolia*, the Siberian Squill.—The two best dwarfs.

Silene acaulis, the Stemless Catchfly, native of Britain, and

acaulis alba.—Very dwarf mossy subjects, suited for choice rock-work, alpine arrangement, or for growing in pans.

Silene alpestris, the Mountain Catchfly.—Pure white, dwarf, and thoroughly hardy; excellent for front row of choice border, or for rockwork.

Sisyrinchium grandiflorum.—Fine early-flowering species; requires peat or sandy soil.

*Tulipa gesneriana** and *scabriscapa**, in variety are the best. *Scabriscapa* is the species from which most of the spring bedding tulips have been raised.

Tunica saxifraga.—A dense-flowering, neat little border or rock plant, but not so valuable or so rare as any of the foregoing.

Vesicaria utriculata, the Bladder Wallflower, native of the Levant.—A good thing, with flowers of a beautiful yellow, like those of *Cheiranthus ochroleucus*, but it is not so useful a plant as that.

Here we stop with the spring subjects. Plants of great beauty may have been omitted, but in few cases without a reason; and certain it is that the place which exhibits flowering specimens of each of those mentioned cannot fail to give fresh, varied, and delightful interest to every lover of a garden. Those marked thus * are the best for beginners, and should be first secured.

ROBINSON CRUSOE.

THE EPACRIS.

BY GEORGE GORDON.



DO not consider it necessary to say one word by way of apology for introducing the claims of this genus to the reader's notice. They are amongst the most beautiful winter-flowering plants we have in this country. The epacris has long been a favourite of mine, and I know several of my friends who are equally fond of the beautiful, tubular-shaped flowers, which vary in colour from pure white to scarlet and crimson, with all the intermediate shades and tints too numerous to mention. Notwithstanding their partiality for these plants, they seldom succeed in growing them in a manner that reflects credit upon their horticultural skill. It is not only amateurs who fail to grow them well; many professionals are equally unsuccessful. This is not because they are so very difficult to grow, but the truth of the matter is simply this: they are delicate rooted, and require attention at the right time. If they get too much water at any time of the year, it rots the roots, and when they are gone, no amount of good treatment will bring them back again. And again, if the plants are stood out of doors and forgotten, and allowed to get dust dry, and remain in that condition until the plants begin to show signs of distress, it is a long time before they recover themselves, even sup-

posing they do at all. Cultivators who have not had much experience in growing hard-wooded plants, forget the difference between them and those belonging to the soft-wooded section. Many plants belonging to the latter may have the leaves hanging over the sides of the pots apparently half dead, a good watering will set them to rights again in the course of half an hour; but in plants like the epacris, flagging represents so much serious injury just in proportion to the extent of the mischief.

In giving a few hints upon their management, I think I shall be able to show that what is most wanted in dealing with them is not so much first-rate skill as constant attention, though I shall say a few words about propagation. I should advise my readers to go to some respectable nursery where they are grown, and buy nice little plants about three years old. They cost but a trifle, and it is much better than bothering with striking them, and then having to wait several years before they get to any size. The propagating is the most difficult part of the whole business, and unless any one has had some practice in propagating hard-wooded plants, the chances are ten to one against their rooting the cuttings after they are put in. The best cuttings are obtained from the young shoots, which push after the plants are cut back. The general way of dealing with them where they are propagated extensively, is to cut a plant back, and place it in a gentle warmth of about 50°. The plants soon break, and directly the young shoots get rather firm, they are taken off. They should be about two or three inches long, and inserted about half their length in the soil of the cutting pot. The foliage should be trimmed off the portion which will be beneath the soil. The pots are prepared for their reception by half filling a five-inch pot with crocks, then up to within half an inch of the rim with peat and sand well mixed together, and on the top of this half an inch of sand. The soil and sand must be made firm, and after the cuttings are inserted firmly, the pots must be covered with bell-glasses, and plunged in a mild bottom-heat. They will require frequent attention in the way of watering, shading, and keeping the glasses wiped, to prevent the condensed moisture running down the sides, and rotting the cuttings. It follows, as a matter of course, that these must be potted off after they are nicely rooted. Small 60's are quite large enough; from these they must be shifted into five-inch, then into eight-inch, and from them into twelve-inch pots.

One shift will be quite sufficient for the whole season, and the most suitable season for doing this is just after they begin to make the new growth. When the plants have done flowering, cut them back, and place in a warm, close corner of the greenhouse until they begin to break, and have made young growths about an inch in length. They should be then taken out of the pots and repotted, and placed in a pit, if it can be spared, and kept rather close until the roots begin to get established in the new soil. When they are nicely rooted, give plenty of air, and after the growth is completed, stand them out of doors to ripen the young wood, and thus promote the abundant formation of flower-buds. In September replace in the greenhouse, and give plenty of air. They are very impatient of

being kept in a close atmosphere, and also of fire-heat. They ought not to have any more than is sufficient to keep the frost out. I must say a few words about the soil, and then bring this to a conclusion. The compost that I have found them to succeed best in consists of good fibrous peat, plenty of sharp silver-sand, and crocks broken small, and all thoroughly well mixed together. To this should be added one part silky loam, full of fibre, to four of the other. Give sufficient water, when in full growth, without soddening the soil, but apply it very carefully through the winter, when the plants are at rest. At all times give sufficient to wet the ball right through, and then give no more until the soil begins to feel dry again. But guard against letting it get dust dry. When this happens, it is a difficult matter to get every portion wetted again. Pot firm, and leave sufficient room to hold plenty of water on the surface. It is all nonsense to talk about potting them high, for fear of the collar rotting when elevated, as recommended by some growers. It is next to impossible to get the centre of the ball soaked, and no plants will flourish with half the soil in the pots dry, and a large portion of the roots dried up. Put a good drainage of crocks in the bottom, and loosen the roots round the outside of the ball, without breaking them about too much, and remove as much of the surface soil as can be conveniently done. I must not forget to add, that when out of doors the plants should be placed in a partially shaded position, and the pots should be stood on a bed of coal-ashes, or elevated on bricks, or small flower-pots, to prevent the worms getting through the bottom.

The undermentioned are a dozen of the very best:—*Carminata*, *Eclipse* (summer flowerer), *Grandiflora rubra*, *Hyacinthiflora*, *Hyacinthiflora candidissima*, *Impressa coccinea*, *Kinghornii*, *Lady Alice Peel*, *Miniata splendens*, *Magnifica*, *Mrs. Pym*, *Pulchella major*.

WINTER SALADING.

BY A MARKET-GARDENER.



ONE of the best and most useful is the *ENDIVE*. The *Green Curled* is the one I have always found best. There is a sort called the *Mossy Green Curled*, smaller and closer in habit. But from every packet of seed will be obtained plants that vary in character—some plain in the leaf, some finely curled—and of course the plain ones should be pulled up and thrown away, for they are easily picked out at the time of planting. There is another sort, the *Batavian*, but it is usually so coarse that I have never thought it worth growing. No time must now be lost in sowing the seed, and it should be remembered that no other plant suffers as much as this from being too thick in the seed-bed; and to get nice close heads in a manner that will make them acceptable, they should be grown quick in a rich deep soil, and when sown the spot should be open, the

ground in a friable condition, and the seed but lightly covered, shaded during dry weather till the seedlings appear, and then be kept well watered if the weather is hot and dry. To be on the safe side, it will be a good plan to sow again the middle of this month; for this season, so far as it has gone, has been such a forcing one, that to give precise rules for sowing seeds is a difficult matter; therefore, as I am not able to foretel the future, I have given this hint, which for all I know may be a very useful one. If the plants have been well used in the seed-beds, they will be fit to go out in six or seven weeks from the time of sowing. They must have a richly-manured border under a south or west wall, and be planted out eighteen inches apart. They must first be carefully lifted with a trowel from the bed, and planted out during dull or cloudy weather, for these are plants which feel the effects of a removal very much. For shading these, as well as many other such plants, put six or eight inch flower-pots over them during the few first bright days, if such should occur after planting. A sharp look-out must be kept for slugs, and a sprinkle of soot and lime put round each plant if they are troublesome. A quick growth should be encouraged by frequent stirrings of the soil. When they are large enough for use, there are a variety of ways to bleach them. One very simple way is to tie them up exactly as lettuces are done; another old-fashioned plan is to lay a piece of common tile or slate over them, while others invert a pot over them; but whatever plan is adopted, it must be borne in mind that it must be done when the plants are *quite dry*; it will take at least ten days or a fortnight to bleach them well. What I have already said applies chiefly to securing a stock for the ordinary consumption of autumn, and for taking up and stowing away for winter. This stowing will receive due attention presently. For what I may call a chance crop, another planting of the last sowing may be put out under the foot of a south wall; this plan is sometimes of great service where there is no room to house them for winter, as very nice little hearts are to be had if the end of the year is not too severe, but of course not equal to those that have been taken under glass. A few dry leaves scattered amongst the plants will give them some protection against frost; it is a safe practice to put out a few plants every fortnight up till the end of September.

LETTUCE is another indispensable subject for winter salads, but it requires some amount of care and trouble to get them a suitable size for winter preservation, for so much depends upon the character of the autumn that it is not an easy matter to say exactly when to sow for this purpose. I prefer to sow about the 25th of July, and again about the middle of August. One or other of these sowings cannot fail to secure the desired sized plants; but should a mild autumn follow, it is just possible that the July plants will get too large, and in that case the later sowing will be just right. For this winter work I have never found any other sort equal to the Hardy Hammersmith, as when well kept it has such a beautiful fresh green appearance, which is very essential in a salad at any season of the year. The cultural directions which I have given above for endive

will serve for these, except in the work of tying or bleaching. This must not be attempted with the lettuce, unless you want them to get rotten at the heart in a very short time. On the subject of preserving salads during winter I shall offer a few remarks in time to be useful.

A LITTLE GARDEN OF ALPINES.



THREE years ago R. Farmer, Esq., of Hornsey, had a lot of Messrs. Backhouse's and Messrs. E. G. Henderson's best alpinæ and herbaceous plants, and what to do with the tiny and choice ones like the Gentians and Mountain Forget-me-nots was the question.

Mr. Farmer grew his alpinæ in an open space. A little bed was dug out in the clay soil to the depth of two feet, and a drain run from it to an outlet near at hand; the bed was filled with fine sandy peat and a little loam and leaf-mould, and when nearly full, rustic stones of very different sizes were placed around the margin, so as to raise the bed on an average one foot or so above the turf. More soil was then put in, and a few rough slabs, arranged so as to crop out from the soil in the centre, completed the preparation for the neater Sedums and Sempervivums, such Saxifragas as *Cæsia* and *Rochelliana*, such Dianthuses as *alpinus* and *petræus*, Mountain Forget-me-nots, Gentians, little spring bulbs, *Hepatica angulosa*, etc. They were planted, the finer and rarer things getting the best positions, and when finished, the bed looked somewhat like an enlarged edition of the vases of alpinæ which Messrs. Backhouse sent to our shows, but much beauty was not expected from the arrangement for a year at least.

However, in eight weeks things had "taken so well," and the bed looked so beautiful, from a dozen plants of *Calandrinia umbellata* that had been planted on the little prominences flowering so gaily and profusely as to make the arrangement equal to one of bedding plants from the "effective" point of view, that Mr. Farmer immediately made a fellow for it, arranged in the same manner, with more loam, however, to suit the different tastes of the alpinæ, and planted with as different subjects from those in the other bed as could be got, confining himself still to the choicest alpinæ, except on the outer side of the largest stones of the margin, where such herbaceous plants as *Campanula carpatica bicolor* (sky-blue on the upper portion of the corolla, and white below) have been planted in both beds with great advantage.

The only attention these beds have required since planting has been to keep a free-growing species from overrunning a subject like *Gentiana verna*, and to well water the beds on hot days—to keep them, in fact, thoroughly moist. They will require no further attention for years. With the exception of the exquisite *Gentiana bavarica*, every alpine plant put in those beds has grown well; the beds have presented fresh floral interest every week since the dawn of spring (indeed *Gentiana verna* was opening buds all the winter), and will continue gay with the *Calandrinia* and *Linaria* till late in autumn. The best display as regards variety was probably in the season of *Dianthus alpinus*; the best effect is afforded by the *Calandrinia* dotted over the beds, and this lasts for months. It is a marvellous plan for effect, as may be well seen in another part of the garden, where about sixty plants form a mass, growing in peat. When the sun shines on it, the "vivid magenta" of this flower eclipses every other colour. The little dark purple bells of the rare *Campanula pulla* droop very effectively over such things as that gem among Sedums, *brevifolium*, and fairy bushes of *Alyssum spinosum*, evergreen, or more correctly ever-silvery. The leaves of this *Alyssum*, if I am not mistaken, will show the stellate hairs more beautifully than any other plant known to microscopists. Choice silvery-leaved subjects like the oyster plant, *Diotis*, and *Androsace lanuginosa*, are especially useful, even if they never flowered, for mingling with little green things like *Thymus corsicus*, that run about and lay over the stones so naturally.

WILLIAM ROBINSON.

NEW PLANTS.



MUNTLEYA ALBIDO-FULVA (*L'illust. Hort.*, t. 556).—Orchidaceæ. A pretty species, with white and copper-coloured flowers, native of Brazil.

ENCEPHALARTUS VILLOSUS (*L'illust. Hort.*, t. 557).—Cycadaceæ.

A well-developed plant, poorly figured. A good drawing of the inflorescence would have been interesting.

ALTERNANTHERA AMABILIS (*L'illust. Hort.*, t. 558).—A charming addition to the useful series of new amarantus for bedding. The colours which prevail in the leafage of this plant are carmine, red, orange buff, and pleasing shades of green.

CÆLOGYNE LAGENARIA (*L'illust. Hort.*, t. 510).—A pretty miniature orchid, which has gourd or bottle-like pseudo-bulbs, and large pale lavender-coloured flowers.

AERIDES LOBBI (*L'illust. Hort.*, t. 559).—A fine figure of this magnificent orchid, one of the most delicately-coloured of the "fox-brush" class.

BEGONIA PICTA (*L'illust. Hort.*, t. 560).—The history and relations of this plant are unknown. The figure shows an elegant mass of leafage, the leaves ovate with cordiform base, pale green, richly variegated with yellow lines and dots.

CAMELLIA CATERINA ROSSI (*L'illust. Hort.*, t. 561).—A charming flower of medium size, the petals imbricated, colour warm pinky flesh, overspread with delicate lines, and dots of pale purple or rose.

HOUSE GARDENING.—"Having been driven by the pressure of a painful bodily infirmity to take up my residence in the crowded locality of Covent Garden, after many years spent in the enjoyment of a greenhouse and hothouse in the country, an endeavour has been made to see how far that enjoyment can be supplied in London. A small, but inexpensive three-light greenhouse has been erected in a back-yard. open, however, and airy, beneath the shadow of a plane-tree, from 40 to 50 feet high, and a mulberry tree, both in full leaf; and here, thanks to the intelligent zeal of my son, whose incipient taste for floricultural pursuits leads him to spend as many hours of an evening in his London greenhouse as he until lately did in his country one, escaping thereby the temptations of more exciting pleasures, we have an interesting collection of ferns, many of them British, which have acquired their full growth from plants which were cut or died down to the roots during the winter, and all are doing well, especially *Asplenium filix-fœmina*, and *Osmunda regalis*; with, amongst foreign species, *Cyrtomium falcatum*, *Nephrodium Sieboldii*, *Lomaria alpina*, *Aspidium triangularum*, *Pellæa rotundifolia*, *Asplenium viviparum*, *Aspidium macrophyllum*, *Cyrtomium caryotideum*, *Leptochilus decurrens*, *Elaphoglossum callæfolium*, etc. Besides these we have a few seedlings in flower, and, thanks to the kind encouragement of the worthy Director of the Royal Gardens of Kew, an interesting collection of miscellaneous plants, some of which are in flower, including *Mahernia vestita*, *Cytisus canariensis*, *Rhynchospermum jasminoides*, *Sollya heterophylla*, *Loddigesia oxalidifolia*, *Mitraria coccinea*, *Polygala Dalmaisiana*, *Rhynchosia gibba*, *Cissus discolor*, *Veronica decussata*, *Monochætum tenellum*, *Jasminum didymum*, *Torenia Asiatica*, *Tacsonia mollissima*, *Chironia Fischerii*, *Lonicera aureoreticulata*, *Malva miniata*, *Prostanthera nivea* and *retusa*, *Tradescantia discolor*, *Eutaxia myrtifolia*, *Graptophyllum pictum*, *Heterocentrum Mexicanum*, and *Eranthemum Cooperi*; and among cool orchids we have fine healthy plants of *Lycaste Skinneri* and *Odontoglossum grande*, both making fresh bulbs. It is, perhaps, scarcely worth while to speak of a capacious fern-case in the window of an upper room, so common is the use in London of this elegant botanical toy, but an invalid whose days are spent recumbent on the sofa may be excused dilating on the pleasure of being able to watch the growth of a vigorous intertwining mass of curious forms of foreign ferns, many of them productions of the most distant parts of the globe, New Zealand, India, Mexico, Japan, among which the following are conspicuous:—*Litrobrochia vespertilionis*, *Nephrolepis tuberosa*, *Drynaria propinqua*, *Pteris scaberula*, *Adiantum formosum*, *Phymatodes Billardieri*, *Phlebodium aureum*, *Colysis membranacea*, *Pteris cretica*, *Lastrea glabella*, etc."—LOVEL REEVE in *Gardeners' Chronicle*.

HORTICULTURAL AFFAIRS.



NEW PARK AT MIDDLESBOROUGH.—His Royal Highness Prince Arthur opened the New Park on Tuesday, August 11th. This was presented to the town by Mr. Bolckow, of the firm of Bolckow and Vaughan, the celebrated ironmasters of that town; he having also spent a large sum of money in laying it out, and making various improvements necessary for the comfort and enjoyment of the thousands for whose benefit it is intended.

GRAND INTERNATIONAL EXHIBITION OF FRUIT.—The managers of the Royal Caledonian Horticultural Society have determined upon holding an "International Exhibition" of Fruit in Edinburgh next year. It is to take place in September; and, great as was the success of that held in 1865 by this Society, we venture to predict a greater success still, if the management is conducted in the same broad, liberal spirit as was evinced in the above-mentioned gathering. *The Gardener* says upon this subject:—"The great London societies are, by the force of circumstances, compelled to have their exhibitions during the London season, when it is impossible to give such prominence to fruit as could be desired. The English provincial societies generally hold their exhibitions to suit the early summer holidays and fruit-growers felt that, while the greatest possible encouragement is given to plants by the great societies we have referred to, fruit does not receive that amount of encouragement which its importance deserves. To meet this deficiency is the object of the projectors of the Exhibition of 1869; and we believe they intend to appeal to the leading growers of the country for that support which they received so readily on the occasion of the previous exhibition of the same character. It is nearly impossible to make an exhibition of plants anything like international, from the expense and difficulty of transport; not so with fruit. It can be packed at one end of the kingdom one day, and be at the other the next, at small risk and cost either of money or labour. Under these circumstances, we hope and expect that the directors of the Caledonian Society will receive such liberal support from all fruit-growers as will enable them to eclipse their former exhibition, which was admitted on all hands to have been the greatest display of fine fruit ever seen in one place at one time."

Mr. D. Higford D. Burr, Aldermaston Court, Reading, has been elected a Member of the Council of the Royal Horticultural Society, in the place of Mr. Henry Cole, C.B., who resigned in May last.

THE HARVEST OF 1868.—This may be considered to be over throughout the southern and midland counties. Wheat is remarkably fine both in quantity and quality, though in many instances the straw is short. Other cereals, such as barley and oats, are below the average, and beans and peas have suffered severely. Potatoes are good, with the exception of those on light soils, which are much smaller than usual. There appears to be no traces of disease. The root crops have suffered more severely from the drought than anything, which is a source of much anxiety to the farmer, particularly those who feed cattle largely for the market. Potatoes are making a second growth. Where they are large enough, take them up at once, and rub off the secondary tubers. Cool, moist weather is better than bright, hot, sunny weather for taking up potatoes. The latter is preferred by some people, but our advice is to those who value their crop not to wait. Those that are too small as yet to pay for digging are as well left alone for the present, as the young tubers now forming may, by the aid of the present genial weather, be useful by and by.

We regret to have to announce the death of Mr. J. E. Lane, jun., of the firm of Lane and Sons, the great rose and fruit growers, Great Berkhamstead, in the thirty-first year of his age.

THE FRENCH VINTAGE.—The *Salut Public* of Lyons says:—"The wine crop offers a splendid aspect everywhere, and is magnificent in Burgundy, Revermont, and Lyons country. In the vineyards of Beaujolais, the vine-stocks literally bend beneath the weight of the grapes, which at present have attained almost their full size, and have begun to redden for the last few days. The owners are in high spirits, and if slight showers and great heat should alternate as hitherto, there are grounds for expecting a very superior yield, in quantity and quality, as compared with that of last year; and, besides, the vintage can be made a month earlier. We

cannot deny, however, that the prolonged drought and the extraordinary heat have caused some danger in certain quarters. In sandy and gravelly soils, many of the grapes have been roasted by the sun. The vineyards of the Mont d'Or have particularly suffered in this respect, and rain is ardently longed for. In the south the oidium has caused serious loss."

TO CORRESPONDENTS.

VINE PRUNING IN GROUND VINERY.—*T.*—In pruning your vines in the winter, cut back the side-branches to within one or two eyes of the main rod. When these break in the spring, select the strongest, as soon as you can see which will bear fruit, and remove the others. Most likely several young shoots will push from the base of the old ones. All the old branches which you will remove will probably not produce bearing wood, but you must train a young one in the place of every one that you remove, to keep up the supply of wood for bearing in succeeding years. It is of no consequence their not producing bearing wood throughout the whole length of the vine. To leave a bunch on each shoot would be too much for the vine, and the whole crop would consequently be poor. Every amateur cultivator of the Vine should read the papers on "Grapes for the Million," published in the *FLORAL WORLD* in the year 1866; and, as they extend pretty nearly through the year, it would be advisable to purchase the volume to obtain them. In the number for January, 1865, appeared a paper explaining every minute detail of vine-pruning.

HARDY FERN HOUSE.—*J. H., Tipperary.*—If the house which your friend is erecting is to be devoted entirely to the culture of hardy ferns, we should have preferred a roof of glass, or it would have done very well without any roof whatever. A very charming dell, for the culture of these lovely plants, might be formed by fixing two or three skylights in the roof, according to the size of the house, for the purpose of affording the plants plenty of light. Ferns would do no good whatever planted in the moss, which you propose to fill the spaces between the uprights which form the sides of the structure. They must have something substantial to grow in. A mixture of soil consisting of equal parts of turfy loam, peat, and decayed leaf-mould, would be the best for this purpose, and would grow nearly the whole of the Britishers to perfection. The soil should be placed round the sides of the house, in a sloping bank, with a few rough pieces of stone or wood to keep it up in its place. If the house is large enough, a pile of rockwork in the middle, the centre of which should be filled with soil as above, and spaces left to plant the ferns in. This will add greatly to the general effect. The plants must have an abundance of water at the roots during the summer when in full growth, and it will be well to syringe them overhead once a day; evening is the best time for doing this. In the winter months, when the plants are at rest, very little watering will be required; just sufficient to keep the soil from getting dust-dry will be all that is necessary for that season; syringing overhead must be withheld altogether. If the ferns are growing in pots, they can be planted at any time; but for those taken up out of the open ground, any time from October to March will be suitable.

ZONAL PELARGONIUMS FOR SPECIMENS.—*Agnes.*—There are two ways of dealing with the plants that you are desirous of taking up—one right, and the other wrong. The wrong way, which we shall advise you not to follow, is to let them grow away, take them up in the autumn, and, after cutting them back, pot in whatever sized pot may be most suitable. When plants are dealt with in this way, it is very seldom they make good specimens. Some of the branches die off, or fail to produce shoots the next season, and frequently one side of the plant is lost. When they are grown in beds, they cannot well be dealt with in any other way without spoiling the general effect of the plants. As it fortunately happens that yours are growing in a border which is not of much consequence, you will have no difficulty in following the right way. The first thing to be done is to cut the plants back at once, and, in doing this, use the knife in such a way as to make nice com-

compact bushes of them. This should be done at once; and, directly the buds start, and the young shoots are about half an inch long, take them up carefully, and trim the roots a little. When this operation is performed, pot them in five-inch pots, and use a compost of fibry loam, with the addition of a little rotten manure or leaf-mould. Place the pots in a frame, and keep rather close for a few days, and afterwards give plenty of air. Keep them in a dry, airy place through the winter, where they will get plenty of light. The greenhouse shelf is the best place. Early in March, shift into eight-inch pots. Use good loam and rotten manure, in the proportion of four parts of the former to one of the latter. Give plenty of water when they get into full growth. By attention to stopping (*i.e.*, nipping out the points of the shoots), and training, and other minor matters which will suggest themselves to your notice, we have not the slightest doubt but you will succeed in growing this class of plants in the most satisfactory manner.

Amateur, Lee.—The best work on the Vine is one by Mr. W. Thomson, called, "A Practical Treatise on the Grape Vine," published by Blackwood, price 5s.

Stephanotis.—The fern is without fruit, and cannot be named. Where *Hoya* does well, *Stephanotis* ought to do well.

GROUND VINERIES.—In your present number a correspondent complains of the failure of his ground vinery. I presume my experience on the same subject may be acceptable. When your recommendation appeared, being a tolerable amateur carpenter. I sent to the saw-mills for 14ft. 1½-in. plank, with which I made two 7ft. lengths 40-in. span, 28-in. slope, 20-in. high (outside measurement), under which I placed two black Hamburgh grapes, one of which last year produced several bunches, but, fancying there was some appearance of oidium, I dusted the bunches with black sulphur. The result was, they shrivelled up and withered in the autumn. I took up the other vine to replace one in greenhouse, putting in a white one. In the winter I took the vinery to cover some ash-leaved potatoes, by which I had two or three weeks' earlier consumption than my neighbours. After that I replaced the vinery, and the black Hamburgh has under the first 7ft. length, to which it was cut back, 27 bunches, and has shot out ten feet of fresh wood. From an accident to my foot my garden has been somewhat neglected, the bunches have not been thinned, etc., as they ought to have been. I now propose, as soon as I am able, to make four more 7ft. lengths for potatoes, etc., in the winter, then bringing them back to their old berth in the spring for the vines, and also for bedding plants, of which I had this spring a considerable number. With a difficulty to shelter them, I ought to say that the vines merely lay on slates pegged down at intervals. I have never rubbed out any buds, but cutting back to one or two eyes.—*T. R. J., Eltham.*

YUCCA GLORIOSA AFTER FLOWERING.—*A Subscriber.*—You had better remove the old flower-stem as soon as the beauty of the flowers is past. If the suckers are a fair size, remove them, and throw away the old stool. If small, leave them until they are large enough to plant out singly. Nine inches or a foot in length may be considered a fair size for planting out. When we have had old plants in prominent positions, with suckers not large enough to take off, we have removed them to the reserve ground, to perfect the growth of the suckers, instead of leaving them where they look unsightly.

POTATOES MAKING SECOND GROWTH.—*E. W. A. G., W. B., Ten Years' Subscriber, and several others.*—Take them up at once, and spread them out rather thinly under cover for a few days before clamping them or pitting them. This will harden the skin, which is not so ripe and tough as when they are left until the haulm dies quite down. There is no necessity to let them get green, for they will not require to be spread out long, and a few sacks or mats thrown over them will break the light.

NAME OF PLANT.—*Alice, Liverpool.*—The flower bracts enclosed are those of the beautiful *Bougainvillea glabra*, the freest bloomer of all the *Bougainvilleas*. It requires a stove temperature to grow and flower it well.

GRAPES IN GREENHOUSE.—*W. F. F., Salford.*—The length and breadth of your proposed border will do, but a foot in depth is not sufficient. It would always be either too wet or too dry. You ought to have it at least three feet deep. If you cannot manage it inside, make the border entirely outside. Perhaps that would be the best in either case, and then there would not be much fear of its suffering from drought through neglect and forgetfulness. Plant the vine in October or November. We should not interfere with the floor in the other compartment.

T. C. Swanage.—Neither of the flowers are those of the *Kalosanthus*. The red flowers are those of *Rochea falcata*, and the yellow ones those of one of the *Sempervivums*, but too much smashed in the post to enable us to say which. The *Kalosanthus* has small, dark green leaves, and upright growing branches. We are glad to learn that you acted upon our advice, and have received no small benefit from doing so by employing seaweed for mulching.

PLANTS FOR CHURCH WALLS.—I feel sure that you will give me information and advice in regard to an object I have very much on my mind to carry out—viz., the beautifying our churchyard and the outside walls of our church. First, then, as to the outside walls of the church. Our church is a large parallelogram, the walls of whitish brick, plain, without ornament, and a clean surface. The front or entrance with very handsome columns, surmounted by a steeple. Now, I wish these two bare, naked side-walls covered, but I am ignorant of what creeping, or rather climbing plants may be best. I know a few such, as ivy, jasmine, honeysuckle, and roses. I believe there are others with larger leaves, and which grow quicker. I should like the two side-walls a mass of ivy and sweet-smelling plants. I have seen such in some of the old places in Cheshire. Will you kindly give me information as to this. Second, as to churchyard. The middle path leads by six or eight stone steps to a terrace, which forms the entrance to the church. On either side of the steps is a handsome railing. Now, I wish for some flowers to creep up the railing (about one and a half foot), and then fall over on the other side to the ground, a distance of five feet. Will you kindly tell me what plants to get? It will add to the favour if you tell me of some nursery at which I can get these.—*J. W. L., D. D.* [You cannot possibly have anything better for covering the side walls than ivy, for it has a fresh, clean, and neat appearance, which no other plants possess, at all times and seasons. All other plants have a more or less ragged appearance, and require training, which would be an endless source of trouble to you. The Virginian Creeper, *Amperopsis hederacea*, is a quick grower, and has large foliage, which dies off in the autumn with a variety of beautiful glowing tints; but then it is bare all the winter. *Hedera helix* is the common English ivy. *H. Algeriensis* is a rapid grower, with fine large foliage. The Irish ivy, *H. latifolia*, is one of the best; the foliage is very large, and it is a quick grower. *H. Ragneriana* has magnificent leaves and a free habit. *H. helix variegata* is the old variegated English ivy, and well suited to give buildings an old and antique appearance. *Wisteria sinensis* would look very well when in leaf, and grand when in flower. There is nothing to equal it. Any of the Clematis would also look well. But these things lose their foliage in the winter, and want regular attention to keep them in order. For the churchyard wall, plant *Berberis Darwini*, *Ceanothus azureus*, *C. integerrimus*, *Cotoneaster microphylla*, *Crategus pyracantha*, *Cydonia japonica*, *Clematis azurea grandiflora*, *C. rubella*, *C. Helene*, *C. Hendersonii*, *C. Jackmanii*, *C. montana*, *C. odorata azurea*, *C. viticella venosa*, *Lonicera aurea reticulata*, beautifully variegated, *L. flexuosa*, *L. grata*, *Ecceiocarpus scabra*, *Calystegia pubescens*, *Passiflora cœrulea*, and a few Ayrshire and Evergreen Roses; all these will answer well for your purpose, and make a nice bank of flowers with but little attention. We have selected evergreens as far as we can, on account of the foliage in the winter. Any respectable nurseryman will supply you with the plants: we never recommend dealers.]



PASSIFLOW-FLOWER.—TACSONIA BUCHANANI.

THE FLORAL WORLD

AND

GARDEN GUIDE.

OCTOBER, 1868.

PASSION-FLOWERS,

WITH FIGURE OF *TACSONIA BUCHANANI*.



COLLECTIONS of stove and greenhouse plants have, during the past few years, been greatly enriched by the addition of several noble climbers belonging to the beautiful order of passion-flowers, and the subject now introduced to the notice of our readers, with the aid of a coloured plate, is undoubtedly one of the most valuable amongst them. Perhaps *the* most valuable of the series is the free-growing and almost hardy *Tacsonia Van-Volxemi*, described at page 154 of the FLORAL WORLD for May, 1866; second to which, without doubt, we may place *T. Buchananii*, both on account of its luxuriant habit of growth and the splendour of its flowers.

"Buchanan's Passion-Flower," as this plant may be conveniently called, is a native of Panama, whence it was first obtained by Mr. Buchanan, horticulturist, of New York, and thence passed into the hands of M. A. Verschaffelt, of Ghent, who has multiplied the plant for the benefit of European cultivators. In its native habitat it is extremely plentiful, and in common with other rampant climbing plants of the forests of tropical America, it wreathes the loftiest trees with festoons, clothing them afresh with its abundance of dark green leaves and brilliant scarlet flowers. It is there almost constantly in flower, but under cultivation its seasons of flowering are during May and June, and again during September and October. One of its good properties as a decorative plant is its habit of flowering freely when quite young, so that it might, no doubt, be grown as a pot specimen in the same way that another section of rampant climbers, the Bougainvilleas, have been successfully managed. The elegant outlines of the leaves, which are distinctly and uniformly lobed, adds much to the graceful elegance of the plant, and in fact it will present an attractive appearance for that reason alone when trained up a pillar, or allowed to hang in festoons from the roof, even when out of flower.

The following are a few of the handsomest of the passifloras now in cultivation :—

Passiflora cœrulea, flowers blue, quite hardy when grown against a warm wall, and in hot summers (as in that of 1868) produces abundance of handsome orange-coloured fruits. Suitable for conservatory and greenhouse.

Passiflora incarnata, flowers flesh-coloured, nearly hardy, of semi-herbaceous habit, extremely pretty and well adapted for the pillars of a conservatory, and for very favourable positions out of doors in the south of England.

Passiflora edulis, white flowers, requires the stove, where it produces its eatable fruit freely. By some the fruit is esteemed as a delicacy, and on that account it is worth growing, but it is one of the least attractive in respect of its flowers.

Passiflora Kermesina, flowers crimson, but more beautiful than can be described or painted. It thrives best in a damp stove, and is quite at home in an orchid-house, where it answers well to produce shade.

Passiflora quadrangularis, flowers green and blue; requires the stove, and will thrive in the strongest heat of the pine pit. The fruit of this is the much-prized “granadilla.” To obtain fruit in any quantity artificial impregnation must be resorted to.* As the flowers are large and handsome, it is a desirable plant for those who do not care about the fruits, which we have always regarded as insipid and worthless.

Passiflora racemosa, flowers scarlet, a gorgeous and most interesting stove climber; one of the best.

Tacsonia pinnatistipula, flowers pink, an extremely beautiful plant, nearly hardy, and admirably adapted for the conservatory.

Tacsonia manicata, flowers scarlet; nearly hardy, a fine greenhouse climber.

Tacsonia Van-Volxemi, flowers brilliant red, borne on long hair-like peduncles. This is an extraordinary plant, growing and flowering most luxuriously in almost any position and circumstances, if only enjoying the shelter of glass and room to ramble about; even a few degrees of frost do it no harm.

Tacsonia Buchananii, flowers brilliant red, hitherto known as a stove plant only, but worth trying in a warm or even a cool greenhouse, when it becomes cheap.

All the passion-flowers are plants of easy culture, provided they have a suitable temperature. As a rule, a border consisting of rich loam is requisite, as their roots run almost as freely as their branches, yet we have seen many kinds thriving with their roots under pavements and hard gravel walks, and amongst mere brick rubbish in stoves and conservatories. What is worth doing at all is

* To impregnate the granadilla, proceed in the following manner :—Early in the morning, as soon as the flower expands, remove by means of a pair of scissors the calyx, the corolla, and the crown. Then cut off a few of the stamens with great care, to avoid shaking out the pollen, and with the stamen touch each stigma in such a way as to leave a few grains of pollen upon it. If pressed for time, remove stamens as required, and dust the pollen on the stigmas without excising the calyx and corolla; but the first plan is the surest.

worth doing well, and in planting a choice species in greenhouse or stove, we recommend some such plan as the following:—

Prepare a brick pit one foot wide and two feet deep; if adjoining a tan-bed or the return pipes of the heating apparatus, all the better in the case of species that require warmth at the roots. Fill this pit with a mixture of four parts good loam, and one part each of rotten hot-bed manure, and the rest leaf-mould, and in it place the plant. If this mode cannot be conveniently adopted, prepare a box in a similar manner, with holes in its sides for the roots to run out, and plunge it in a tan-pit. In the autumn, shorten the stems of the plant, and in January lift the roots carefully, cut them in moderately, remove some of the exhausted soil, and replant, adding fresh compost to make good what was taken away. By this mode of procedure a fine plant may be obtained, and kept in health many years, without occupying any great amount of space for its roots. Where there is any length of wall to be clothed, a border should be formed for their accommodation, and it will be the more serviceable if warmed by means of pipes carried beneath it by means of a tunnel formed of brick, tile, or slate. The beautiful *Passiflora alata* may be planted in the common soil forming the floor of the stove, and will thrive under bricks or tiles, provided it obtains sufficient water, but, as a rule, other species worth growing require better conditions to insure success.

In the true passion-flowers the calyx has a five-parted limb; in the *Tacsonias* the calyx is ten-parted. S. H.

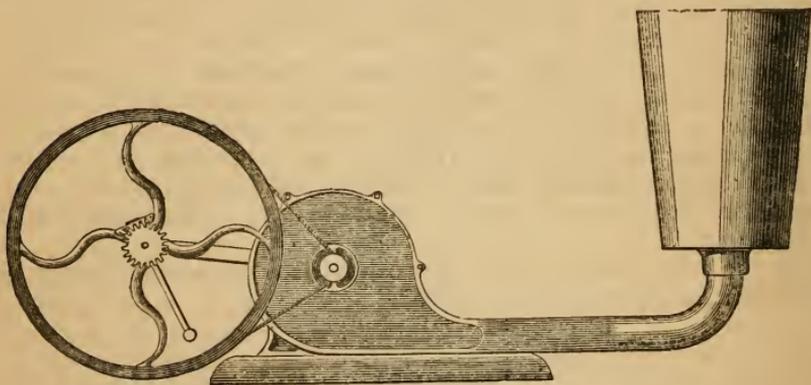
DEAN'S PATENT FUMIGATOR.



N efficient distribution of tobacco smoke is one of the necessities of horticultural practice, but it is no easy matter for the cultivator to determine, amongst dozens of inventions offered him, which amongst them is the best. We have tried many, and have usually concluded that the less said in their praise the better, for though they all accomplish the end in view, one way or another, there is generally some objection in the method of their operation—some deliver the smoke too hot, others require more attention than can be reasonably given, and others, again, are wasteful of the material used in fumigating. Hitherto our favourite fumigator, and the one frequently recommended in these pages, was *Gidney's*, which consists of a cylinder and spirit-lamp, the tobacco being ignited by means of a flame beneath it. One of the evils incident to the use of this is, the liability of the tobacco being overheated, and bursting into flame; another is, that we must allow it to take its own time to burn out. We have resolved to abandon all other fumigators for "*Dean's Patent*," which we have tried fairly, and found satisfactory in every particular. It is represented in the adjoining cut.

The mode of operating with this instrument is extremely simple. A few pieces of red-hot cinder or charcoal are placed in the hopper,

and then it is filled up with damp tobacco. By turning the wheel, a series of fans are set in motion, and a current of air is thereby driven through the tobacco, and the hopper, which measures six inches in diameter, immediately vomits forth a dense cloud of cool smoke, which continues until the tobacco is consumed. In the course of a few minutes a large house may be rendered opaque with smoke by means of this machine, and the grand object is gained of a *complete kill* at once, and for all the vermin that tobacco smoke, properly administered, is fatal to. Partial fumigation is a sheer waste of tobacco, for if a few of the insect plagues are killed by it, many escape, and it is found necessary to smoke the house again and again, and the repetition is less effectual than one thorough smoking, such as "Dean's Patent Fumigator," properly used, will accomplish.



DEAN'S PATENT FUMIGATOR.

There is another fumigator, which in some respects resembles the one before us, but is essentially different in operation, inasmuch as the smoke passes over the fans, and they are liable to become clogged with dirt, which is impossible with Dean's machine.

In our trials of the fumigator, we found tobacco paper preferable to tobacco, and cheaper; but unless good paper can be obtained, the strongest shag is to be preferred.

Any of our readers who wish for further particulars are directed to Mr. W. Dean, Bradford Nursery, Shipley, Yorkshire. S. H.

SPRING-FLOWERING BULBS.



MUCH may be said about the beauty of this class of plants were I in a sentimental humour. Fortunately I am not, for my readers' sake, and, perhaps, my own. Every one who has any knowledge at all of flowers knows, as well as I do, what a beautiful appearance a conservatory presents when filled with a nice collection of bulbous and other spring flowers, and it is quite unnecessary for me to tell them what

they already know; and I believe that there are few indeed that have a greenhouse or conservatory, who have not the desire to have a nice show of spring flowers. With this impression fixed firmly on my mind, I will do my best to assist them in realizing their wishes in this respect. I shall not say anything about hyacinths in this paper, for I have no doubt but what one of the many able contributors will take the subject in hand in this or the following number. I shall confine myself to miscellaneous bulbs, which I have found necessary to grow to make the conservatory under my charge as beautiful as possible, and also for the sake of variety, as it happens to be rather a large one. No matter how beautiful anything may be, it is quite possible to have too much of it. The eye tires of constantly seeing the same thing over and over again, and longs for something to turn to for a relief. Knowing that I am not at all singular in my views upon this point, I resolved to say a few words upon the subject, in return for the large amount of benefit I have at various times derived from these pages.

I shall not go through every cultural detail with all the sections that will come under our notice; there is so little difference in their management that it would be tedious for the reader to wade through the same thing over and over again, besides, it is quite unnecessary. I will first say a few words about the general culture, and then dip into the sections for the most suitable kinds to grow, at the same time I will indicate any special feature that may be necessary to be observed. Pans and pots of various sizes and shapes have been from time to time recommended, not particularly in these pages, but in all the horticultural papers; but, to tell the truth about the matter, I have never found anything better than the old-fashioned 32, or six-inch pot, for bulb-growing for the conservatory. When intended for sitting or drawing-rooms, fancy baskets and jardinetts are very well, and I have not a word to say against them. Let the pots be thoroughly clean and a good drainage of crocks in the bottom, and for compost select good turfy loam full of the rootlets of the grass, which has been stacked up for a few months, and add an equal proportion of fat manure and a little river-sand or other gritty substance. Silver-sand is very well, but it is too expensive to be used for this purpose. Should the soil be deficient of fibre and rather close in its texture, one-fourth part of cocoa-nut refuse, mixed with the soil, will be of great service in keeping it open, and thus allowing of the full and free development of the roots. Almost any of the bulbs will grow tolerably well in the refuse alone, but there is not sufficient nourishment to bring them to a high state of perfection; it acts as a capital mechanical agent, mixed with a rich compost, by keeping it open and porous. The bulbs should be potted so as the crowns or necks just show above the surface, and the soil filled in rather firmly. The pots should be taken from the potting-shed and plunged in a bed of coal-ashes, and then covered with several inches of it. Two batches should be put in, one the beginning of September, and the other a month later. The first lot should be removed into a pit some time in January, and then, after a few days' stay there, be shifted into the forcing-pit to bring them along. The forcing must

be done slowly; it ruins the best bulbs to drive them too hard. Give plenty of light, air, and water, and a temperature ranging from 50° to 55° will be the safest to adopt. Those put in last must remain in the ash-bed a few weeks later, and after a short stay in the cold-frame be removed to the greenhouse, where they will come along with but little trouble, and last in perfection much longer than those forced with artificial heat.

In running through a few of the most important sections, I will commence with the—

POLYANTHUS NARCISSUS.—If very fine bulbs, these should be grown singly, otherwise a better effect is produced by growing two or three together: there is no very great difference in the colours, but some are much better than others. The following are some of the best:—*Bazelman Major*, white, with yellow cup; *Florence Nightingale*, white and yellow; *Grand Monarque*, white, citron cup; *Grand Soleil d'Or*, yellow, orange cup; *Newton*, yellow; *Perle Blanche*, pure white; *Queen of the Netherlands*, white, citron cup; *States General*, citron, yellow cup.

EARLY TULIPS.—These are the most showy of the whole family, and are sufficiently bright to light up the most sombre collection of plants, and are particularly useful early in the season on that account. They are best grown three in each pot, and should be brought into the conservatory immediately they begin to show colour, for they last but a short time in good condition after the flowers are fully open. As they can be bought for a trifle, I should recommend them to be grown rather extensively, and brought into the conservatory in batches of about a dozen pots at a time—I don't care for too many at once. The following are all good for early forcing, but *Duc Van Thol*, both single and double, and *Tournesol*, are the best for growing in quantity for early work. Of the single varieties select the following:—*Bride of Haarlem*, crimson and white; *Chrysolora*, yellow; *Cottage Maid*, rosy-pink, striped with white; *Duc Van Thol*, in its various colours of scarlet, white, and yellow; *Fabiola*, rosy-purple and white; *Keizerkroon*, yellow and red, one of the very best; *Pottebakker*, in its three varieties of pure yellow, white, and red and yellow; *Proserpine*, dark rose, very dwarf, and an early flowerer; *Rose Luisant*, rosy crimson, edged with peach; *Thomas Moore*, orange; *Vermilion Brilliant*, rich vermilion. The best of the doubles are—*Duc Van Thol*, red; *Duke of York*, red and white; *Rex Rubrorum*, red; *Tournesol*, red and yellow; *Tournesol new*, yellow, very distinct. The following are a dozen good single varieties for growing in pots for enlivening a cold house:—*Belle Lisette* and *Canary Bird*, bright yellow; *Donna Maria*, white and crimson; *Florida*, purplish-violet; *Imperator* and *Gris de Lin*, mauve, striped with white; *Queen Victoria*, white and crimson; *Roi Pepin*, white and rose; *Superintendent*, violet-purple, feathered with white; *Van der Neer*, purplish-violet; *Yellow Prince*, yellow.

CROCUSES.—These are extremely beautiful, but too ephemeral and evanescent to enable cultivators to grow them so extensively as the beauty of the flowers deserve. The best way is to pot five bulbs in a six-inch pot, and bury the bulbs half an inch below the surface.

After they come from the plunging material and have recovered themselves, place them so that they may get an abundance of light and air, and as close to the glass as possible. The crocuses are really not worth the trouble of forcing in heat, for they remain in bloom so short a time, and they come into bloom early with greenhouse treatment. It will, perhaps, be as well to say that fine large bulbs only should be employed for growing in pots. *Albion*, striped mauve; *Caroline Chisholm*, pure white; *Golden Yellow*, very large and fine; *Ida Pfeiffer*, white, striped with mauve; *Ne Plus Ultra*, fine blue; *Prince Albert*, blue; *Princess Alexandra*, dark violet; *Queen Victoria*, white; *Sir Walter Scott*, white, striped with blue, are amongst the best of those suitable for growing in-doors.

MISCELLANEOUS BULBS.—*Jonquils* are invaluable on account of their delicious fragrance. The *large Double Sweet-scented* is the best, and the *Single Sweet-scented* is also very good; they should be grown three in a pot. *Snowdrops* should be taken up at once and potted, and the pots plunged in a cold frame, where they should remain until November, and then be removed to the greenhouse. The pots should be placed on the shelves close to the glass, and have an abundance of water: these should be taken up in good clumps, and as they bloom naturally early in the spring, very little is gained by subjecting them to fire-heat. *Ixias*, *Sparaxis*, *Babianas*, and *Tritonias* are all good for early flowering. Of the *ixias* select *Bucephalus*, *Golden Drop*, *Lady Slade*, *Nora*, *Præstans*, and *Rosea Multiflora*. The following *sparaxis* are all good—*Angelique*, *Belvidere*, *Leopard*, *Maculata*, *Tricolor Grandiflora*, and *Victor Emmanuel*. Of the *tritonias*, *Aurea* and *Crocata* are the two best, the latter being preferable of the two. These should be taken out of the old soil and repotted soon after they go to rest, about eight or ten bulbs in each six-inch pot. The cold-pit is a capital place for them until ready to bring into the conservatory, or, if required early, into the forcing-pit. A large selection of *babianas* is not required, but the following are indispensable to all good collections of bulbous plants—*Atrocyanæa*, rich dark blue; *Kermesina*, crimson; and *Villosa*, violet. *Lachenalias* do not belong to what are commonly termed “Dutch bulbs,” but they are nevertheless invaluable where spring flowers are appreciated. They are best potted when at rest, six bulbs in a six-inch pot. Keep in a cold-frame until November, and then remove to the greenhouse; place the plants near the glass, and give them plenty of air. They are not grown half so extensively as they ought to be, considering their extreme beauty and distinctness from everything else. The next plant which I shall call attention to is not, strictly speaking, a bulbous plant at all, but tuberous-rooted, namely, the early-flowering *Tropæolums*. Of these, for early spring blooming, by no means fail to secure *Azureum*, *Jarattii*, and *Tricolorum*—they are all first-rate, the last being best known. Pot these at once as they will soon be on the move, and if handled much after growth commences, there will be a danger of getting the growing points broken off. One tuber in each pot is sufficient, and the soil should consist of two parts loam and a part each of decayed manure and leaf-mould, with plenty of silver-sand. The tubers should be just covered and a trellis put to

them at once, or they will get entangled and broken about. A few small branches of birch, with all the side twigs, stuck in each pot, answer admirably for the small shoots to twine over, and the appearance is equal to the most expensive trellis that could be made. A new birch-broom would be sufficient for a dozen or two. I shall conclude these few notes by advising my readers to pay a little more attention to the *Squills* than they have hitherto received, and thus add more beauty to their conservatories and windows than they have yet had. There is nothing to equal them in colour; and the beautiful bright blue of *Scilla Amoena*, *Peruviana*, and *Siberica*, which are the best kinds for indoor work, form a striking contrast to the other flowers which will be in bloom at the same time. Put three or four bulbs in each pot, plunge in cold-frame, and remove to conservatory as they come into flower. I have said before that I prefer growing bulbous plants in pots; and I would add here, that where they are grown in jardinetts, I would advise that they be planted with one genus only, such as all hyacinths, all tulips, and so on. When mixtures of several genera are attempted they seldom look well, for one colour is gone before the other is out, and failure is the result. A mixture of colours of any one genus is much the best and far more satisfactory; at least, I have found it so, after furnishing many hundreds of them for the drawing-room, and having my employers to please as well as myself. 

FURTHER NOTES ON ROSES TO FLOWER AT CHRISTMAS.

BY HENRY HOWLETT.



N the issue for August of this year, I furnished a few advices on the preparation of Roses for a winter bloom, promising to seize the first opportunity for further observations on the subject.

The peculiarly dry and warm month of September which we have just experienced, will have brought the buds at the base of the shoots to an unusual state of plumpness, and cultivators of pot roses may in consequence anticipate a fine display of bloom in the coming winter. I shall suppose they have been carefully potted, as already advised; I must also suppose they have had abundance of water, which by the by has been more needed this summer than usual. Lastly, I must suppose you have duly attended to the instructions for bringing them to a state of rest by removing them to a cool and airy situation on the occurrence of damp autumn weather. They may now be pruned, and have the wood dressed with a mixture of soft-soap and clay, made into a thin paste by the addition of tobacco liquor. With this dress all the wood, laying it on with any old soft brush. The way in which the plants are pruned has much to do with the production of flowers, for if pruned "too hard"—that is, if the shoots are cut too close back to the old wood where the buds are imperfectly developed—the growth from such buds when forced

will probably fail to bring a good rose at its summit; therefore for early work look more to the production of the greatest possible amount of bloom than to the formation of a well-balanced plant, for with plants that have not been specially trained for the purpose, the two desirable points, viz., plenty of flower combined with symmetry of form, cannot always be secured. Plants taken in hand later in the season, with a view to forcing next year, should have greater attention paid to the latter point.

Assuming that the plants are in a fit state for forcing, we must consider the means necessary for carrying it into effect. This may be done in any pit or house that is *light*, and that can be kept at a moderately warm temperature—say 60° to 65° by day, and 50° to 55° by night, in dull sunless weather such as we usually experience in November and December, with a rise of 5° to 10° when the sun shines. This rise of temperature during sunshine must be accompanied with extra air, but very much depends upon whether the plants are placed close to the glass, in a very light structure, as well as upon the condition of the plants as to ripeness and plumpness of wood. If the plants are in fine condition, with hard wood and promising well, they may enjoy a rise of 5° or even 10° with sunshine, without harm; but the safest plan is to adopt the minimum temperatures given above, and if the plants break strongly, and put on a dark green and vigorous foliage, it will be a sign that a cautious increase of temperature may be indulged in; but if, on the contrary, the foliage is thin and pale, and the shoots weak, the contrary course must be pursued, and more air admitted. It may be no harm indeed to observe here that *slow* forcing is safer and easier for beginners than *fast* forcing; the practitioner must therefore make his own choice.

It is somewhat difficult to calculate the precise time it will take to bring the plants into flower, so much depending upon the amount of sunlight we may or may not get, and the condition the plants are in when taken in to force. It will be better, therefore, to introduce a few plants at intervals of a week or fortnight, than to do so with them all at once, beginning to do so early in November. If a moderate degree of bottom-heat can be secured to the roots, it will be well; this may be secured in various ways, such as plunging in tan, leaves, or other fermenting material, or over a tank, or even upon a rack placed above the pipes or flue by which the house is heated; if by the latter mode, especial care must be taken to preserve a moist atmosphere about them by frequent syringings of the heated surface, and by painting some part of the same with sulphur, to keep off red spider. Watering must also be looked to, to see that when given it is in sufficient quantity to pass out at the bottom of the pot; and it should be in a tepid state, and moderately dashed with some liquid manure, such as the drainage from a farmyard or cowhouse; but if it has to be made for the purpose, steep deer, sheep, or horse droppings with a little soot (tied up in a bag) in water, in preference to stirring guano or other artificial manure in the watering can; these are only safe in experienced hands.

Green-fly must be looked for, and the usual remedy, tobacco smoke applied.

After the plants have flowered, they must have protection in some structure where they can finish their growth, and be protected from injury until the season is sufficiently advanced to allow of their being placed out of doors. I conclude with the hope that each of my fair readers who attempts to follow my instructions may enjoy

A bower of Arcadian sweets,
 With Flora still in her prime,
 A fortress to which she retreats
 From the cruel assaults of the clime.
 And when earth wears a mantle of snow,
 Have her *roses* as fresh and as gay
 As the fairest and sweetest that blow
 On the beautiful bosom of May.

In case these remarks should stimulate some of our readers to purchase roses for forcing, I would advise them to apply quickly to some of the most respectable nurserymen, and state the object for which the roses are required. At all the great nurseries where roses are largely grown, and with the names of which our readers must be familiar, fine plants well adapted for forcing may be had at from about twenty-five to forty shillings per dozen.

NOTES ON GREENHOUSE CLIMBERS.

PLUMBAGO CAPENSIS.



WHAT is the most beautiful greenhouse climber in flower in October? *Plumbago capensis*, undoubtedly; and it is one of the very best plants ever introduced or ever seen in this country for training up the pillar of a conservatory, and then, if you like, running from pillar to post at about eight feet from the ground. Suppose the case of one of that large class of gardeners that have to prepare gardens and greenhouse and conservatory for an autumnal show, when the great people go in the country after the London season. It is just possible he may have a lot of rambling, but dirty-looking and flowerless creepers in his conservatory, which, combined with the general want of autumnal attractions there, will make visitors keep clear of it for the out-door display; but a good plant of this *Plumbago* will light it up with a beauty, about the end of September and beginning of October, which cannot be surpassed by that of any other plant in flower at the time, either in-doors or out. It is possessed of every quality which a good greenhouse climber should have—shoots that hang freely down, tipped with a truss of pure but delicately blue flowers; freedom from dirt or insects of any kind (this is of the greatest advantage in a greenhouse climber); freedom of growth and bloom in almost any soil in greenhouse or conservatory. Of course you have seen it grown in pots, generally badly, but sometimes well; but that is a very contracted way of growing a thing with a soul above even a No. 2 pot, and if you once see it in flower against pillars, etc., in a conservatory or large greenhouse, you are not

likely to try it again in a pot if you have any alternative. As regards the soil, watering, etc., a word need not be said. "We" once thought a dry conservatory border, in which the plant could ripen its wood well, the correct thing; but have, since then, seen it growing and flowering even much better from the moist, gravelly soil of a conservatory, and the soil and conditions that will suit the commonest and hardiest greenhouse climber will suit it. Of course it must be pruned in close every winter, and that is about the only work necessary after planting; and, once the plant is grown and tied over the space you intend it to cover, that interloosing and tri-weekly cutting out necessary with *Cobæa*, *Passiflora*, *Tacsonia*, etc., is fortunately never required. Mr. Gibson tried this plant as an edging at Battersea—a bold move indeed—and it flowered pretty freely with him; but it cannot be recommended for this purpose.

HABROTHAMNUS ELEGANS.

A true greenhouse evergreen plant, native of Mexico, introduced in 1844; "flowers in the first month," says Paxton—he should have said in all twelve, for, if placed in the right position, there is not a day in the year but you may find good flowers on this plant. That position is against a pillar in a conservatory, where it can run up to its full height, and its fat shoots, that keep bursting up so determinedly when the plant is cramped in pots, or cut in too much in any position, satisfy themselves, and break out into gracefully-pendant shoots, that hang down tipped with rich bunches of carmine flowers—good "for cutting" and embellishment of most kinds. It is not the least fastidious about soil, and will grow "anywhere" in a conservatory; best suited, however, for large ones, where it may not be necessary to cut in the free-flowering growth that spreads so widely round a pillar. It is one of those plants that might be the better of removal and replanting after four or five years' work, as it then might get exhausted, which is not the case with the *Plumbago*. Other species may be as good or better, and are worth trying in this way.

CANTUA DEPENDENS

is not marked as a climber in the catalogues, but that is the best way to grow it. Put it against the back wall of a greenhouse, and try it! At the Marquis of Westminster's, Eaton Hall, there is a magnificent plant of *Lapageria rosea* planted against a back wall, and spreading about in all directions. It is planted in moist rich loam, in a border a little below the level of the pathway; and though Mr. Collinson sometimes counts 500 flowers on his *Lapageria* at one time, he has a plant growing next it, in the same border, and under the same conditions, which he values as highly, and that is *Cantua dependens*. It does not flower continuously, as the noble *Lapageria* may be said to do; but then the splendid spikes of flowers which it yields in the early part of the season compensate for that.

COBÆA SCANDENS.

As for this old friend of ours, he is not much good for the greenhouse proper, or conservatories of the ordinary type; but if

you happen to have charge of one of those enormous glass and iron spans that cover railway-stations, or at such a place as Kensington and the Crystal Palace, you may make good use of it; but even then it is not attractive, and is liable to get full of decayed leaves, etc., in the winter, when *Passiflora* and *Tacsonia* are quite firm and green. In warm places it does well on a trellis out of doors for the summer, and perhaps this is the best way to grow it for those who like the plant, and have not a place for it indoors. The new or newish variegated variety is pretty, and does not grow so fast, but after all is but a second-rate plant. The *Cobæa* is mostly used for "greening" large conservatories; but in this respect it is far inferior to *Passiflora cœrulea*, which grows nearly as fast, and is not at all so liable to that unsightly decay which so often disfigures the *Cobæa* high up in the conservatory—perhaps where it may be difficult to get at.

PASSIFLORA RACEMOSA, *CERULEA*, AND *IMPERATRICE EUGENIE*, are probably as good or better than any others for the greenhouse; if for a large one, so much the better, as they can hardly be developed sufficiently in a low, small structure to show their beauty. Anybody can grow them, so it is useless to repeat the old formula about loam and peat, and peat and loam, and "moderation in watering," and all that kind of thing, which nobody need know a word of to grow such things as these.

RHYNOSPERMUM JASMINOIDES.

At length we come to a beauty for the small and if rather warm greenhouse so much the better. If you grow greenhouse climbers in pots, this must be a leader among them; but if not, nothing you can suspend from a wire is more worthy of attention. It will not exactly grow in "cold obstruction" at the root, like the vigorous *Habrothamnus* and *Plumbago*; and here you may call on the nice bit of peat and loam if you like, adding also some fine sand, and make a special little bed or border for it; or grow it in a good pot on the bench, and train up the wires. Nothing can be lovelier than this plant when well grown, and a sheet of snowy blossoms on a globular trellis. Trellises five feet from the pot may be covered by it; and, shown well in this state, how much better it looks than many things not properly climbers which are tied down trellis-fashion by the exhibitor. At the Chief Secretary's garden in the Phoenix Park, Dublin, Mr. M'Neil, the very able gardener, has, or used to have, some finer specimens of it than those usually shown in London. Being of more delicate growth than most plants of its class, when planted it should be taken a little pains with, put as near as possible to the glass, and be regularly attended to with water.

CLEMATIS LANUGINOSA.

None of the new hybrid Clematises are nearly so grand as this, but it is rarely grown well, chiefly because it is hardy enough to live in the open air, but not to do well there. Against a warm wall, among shrubs, etc., it may now and then be seen good; but if every-

thing is to be in its place, and you can spare it room in the conservatory, put it against a pillar there, particularly if it is one of those houses with a pit or bed of good earth in the centre. The greatest plant the writer has seen of it was grown in that way, and was well furnished with fine pale blue flowers, nearly as large as breakfast-saucers. *Clematis indivisa lobata* is said to be good, but that he has no experience of.

BRUGMANSIA SUAVEOLENS.

Reader, have you ever tried this as a wall-plant? You have, of course, heard of the conservatory wall at Chatsworth, in which nearly all fine hardy greenhouse climbers had a trial. Years ago, a large portion of this glass-covered wall was clothed with the vigorous green of this fine plant, over which drooped gracefully scores of its beautiful large white flowers, so sweet as to fill the whole long structure with fragrance, and cause the people to come out in the dusk to see the full beauty of the plant. It, like the other *Brugmansias*, is of the easiest culture, and will not require much care from the gardener, after once covering the space allotted to it, except a few minutes with the pruning-knife in the winter or late autumn, when it is usually pruned back a little. In a cold greenhouse, the tips, and perhaps a good deal of the shoots, may get pinched off with the frost in the winter, but the plant "comes away" vigorously with returning summer.

MANDEVILLA SUAVEOLENS.

A well-known first-class climber, sweet, white, and beautiful—free to grow and to produce its flowers, but very liable to green-fly. It will run up a back wall, and cling to rods or wires freely, and if trained to a rod overhead from which its shoots can swing, so much the better. It is well suited for large conservatory or moderate-sized greenhouse.

ROBINSON CRUSOE.

THE MOON AND THE WEATHER.—If any marked connection existed between the state of the air and the aspect of the moon, it must inevitably have forced itself unsought upon the attention of meteorologists. In the weekly return of births, deaths, and marriages, issued by the Registrar-General, a table is given, showing all the meteorological elements for every day of the year, and a column is set apart for noting the changes and positions of the moon. These reports extend backwards nearly a quarter of a century. Here, then, is a repertory of data that ought to reveal at a glance any such connection, and would certainly have done so had it existed. But no constant relations between the moon column and those containing the instrument readings have ever been traced. Our meteorological observatories furnish continuous and unbroken records of atmospheric variations, extending over long series of years: these afford still more abundant means for testing the validity of the lunar hypothesis. The collation has frequently been made for special points in the inquiry, and certainly *some* connection has been found to obtain between certain positions of the moon in her orbit and certain instrumental averages; but so small are the effects traceable to lunar influences, that they are almost inappreciable among the grosser irregularities that arise from other and as yet unexplained causes.—*Once a Week*.

CARNATIONS AND PINKS TO FLOWER IN WINTER.

BY ROBERT OUBRIDGE,

Church Walk Nursery, Stoke Newington.



ALTHOUGH three years since I contributed to the FLORAL WORLD an essay on this subject, I have been requested to "brush it over" once more; and in complying with this request, I take advantage to show how the varieties of the common garden pink may be forced, for it is not generally known that they are well adapted to furnish *fragrant* winter flowers, and I have grown them in sufficient quantity to have become familiar with every little circumstance of management on which the cultivator must depend for success. I have only to request that readers who wish to understand the subject practically will pay attention to *every* point, as I shall endeavour plainly to state it.

The TREE CARNATIONS are the most valuable of the race for winter flowers, and there is but one way of treating them, and that is to *raise a fresh lot of plants every year*, and to destroy the old ones as soon as they have furnished a sufficient number of cuttings.

The plants intended for flowering in winter and early spring should be struck in February, March, and April. Take cuttings of two or three joints in length, remove the lowest leaves only, put them into pans or boxes (boxes are *always* best), in sand alone, and shut them up close in a mild moist heat. Nothing like dung-heat for such things; but we strike a good many in the propagating house, over a tank. The first lot may be hastened and made better plants of by putting the cuttings singly into thumb-pots filled with sandy peat, from which they can be shifted on; and if the cultivator loses the early part of the season, and wants to make up for lost time, he must do them singly in pots, as by this method they have no check. When well furnished with roots, put those from boxes into thumb-pots, and those from thumb-pots into 60-size, and so on, always observing that they should not be shifted till they really need it, nor be allowed to get pot-bound and starving for want of a shift.

Soon after the first shift, nip out the points, or, in other words, "stop" them. But *after this they must not be stopped again*; this is very important. The pots must be well drained, and the compost should be turfy loam, with about a third of its bulk of old cow-manure, and a fair proportion of silver sand. Continue to shift as required till the middle of July, when they may be in pots of eight or ten inches in diameter.

From the time the cuttings are rooted, the cultivator must use his own judgment as to the amount of heat they should be subjected to—the golden rule being to give them as little as possible, and to get them into frames and pits as soon as ever it is safe to deny them the aid of artificial heat. If driven hard, and much roasted, they will be covered with vermin, and more or less spoiled. From the

time they have had their last shift, they should be put out of doors in an open situation, to make a stout growth and form their flower-buds. When their pots are full of roots, water them constantly with very weak manure water. It should never be strong, or it will poison them; it matters not what sort of manure is used, whether guano, or the drainings of the dung-heap, or sheeps' droppings steeped in water, so long as it is such as you know to be suitable for plants, and so far diluted that it is decidedly weak. By this treatment, and the aid of a little occasional tying and training, you will have fine plants for winter flowers.

About the first of October is early enough to house them, as a rule, but if flowers are wanted extra early, they should be housed about the 20th of September. Keep them near the glass in a cool airy house for a fortnight; then transfer them to a warm greenhouse, and they will begin to bloom in November, and, by judicious management of the succession plants, flowers may be had until the end of March.

Any one desirous of having the flowers all the year round could do so, for a *second stopping*, and a shift in August of those struck in April, would insure blooms in March and April following, and perhaps even to May; but I cannot speak positively on this point, for I should not give them house-room after March, as there are so many other things then that would pay me better.

If the private cultivator has not the courage to throw away the old plants, he may let them remain in their pots, without pruning, and with regular supplies of water, till June, and then plant them out against a wall, and they will flower in September or October. Even then they need not be destroyed; they may be assisted through the winter with the help of mats, and thus may be kept many years. *But if fine winter flowers are required, a fresh batch of plants must be raised every year.*

The following eight varieties are the best in cultivation:—

Ariadne, orange-yellow ground, crimson flake, fine form.

Beauty, pure white, pink stripe.

Garibaldi, purple, very sweet.

Gloire de Permillieux, scarlet, dwarf.

Magna coccinea, crimson clove.

Perfection, white, with bizarre flakes of purple and crimson, equal to a show carnation.

Queen of Whites, the best white, and a true clove.

Souvenir de la Malmaison, rosy flesh, very fragrant.

PINKS are easier to manage, and we can employ them to fill up the blanks in the seasons when carnations are not to be had. We must include for our purpose the new hybrid or mule pinks, for they are most accommodating. The plants should be struck in May, and if kept in pots, will be in bloom in pots out of doors from the 1st of October, and, if taken in before frost occurs, continue to flower until December. The best way to manage pinks for winter flowers is, first of all, to strike pipings *as soon as you can get them*, and if you can do this on a gentle heat all the better; but they will soon strike if shut up close in a frame. Plant them out in well-

manured ground as soon as rooted. At the beginning of October, lift them carefully, and pot them in 32-size pots, put them in a cold frame until December, then carry them to the forcing-house. Some of the hybrid or mule varieties may be struck in May, June, and July, and will afford flowers in winter and spring.

The following are the best varieties for this system of cultivation :—

Anna Boleyn, rich crimson; this and the varieties that have been bred from it are invaluable for forcing.

Garibaldi, crimson, with violet centre; fine.

Most Welcome, pure white, crimson margin.

Plato, light violet rose, very fragrant.

Napoleon III., rich crimson.

Marie Paré, pure white; fine.

A SELECTION OF CHAMBER PLANTS.

BY ROBERT BULLEN,

Curator of the Glasgow Botanic Gardens.



THE following is a list of plants which will live in a room through the year, if the frost is kept out and due attention is given them in various seasons, according to their requirements. All are handsome, some of them pre-eminently so :—

Lomatia elegantissima,
 „ *ferruginea*,
 „ *silicifolia*,
 „ *polyantha*,
Nerium splendens,
Dracæna terminalis,
 „ *ferrea*,
 „ *Cooperi*,
 „ *gracilis*,
Aralia leptophylla,

Aralia Sieboldi,
 „ „ *variegata*,
 „ *trifoliata*,
 „ several other species,
Ficus elastica,
Rhopala Australis,
Arundo Donax variegata,
Begonias, of sorts,
 Palms „
 Ferns „

Many other things would be quite as tractable in a room, and far more graceful than *Ficus elastica*—Orchids, for example, such as

Barkeria Skinneri,
Ærides Warneri,
Brassavola Digbyana,
Calanthe vestita,
Chysis Limminghi,
Cypripedium barbatum,
 „ *venustum*,
 „ *insignis*,
Dendrobium nobile,
 „ *pulchellum*,
Epidendrum vitellinum,

Leptotes bicolor,
Lycaste Skinneri,
 „ *aromatica*,
Mormodes aromatica,
Oncidium ampliatum,
 „ *flexuosum*,
 „ *divaricatum*,
 „ *cupreum*,
Pleoina maculata,
Sophronites cernua.
 „ *violacea*.

NEGLECTED PLANTS FOR SUMMER FLOWERING.



IRECTLY the beauty of the show and fancy pelargoniums is over, we hear a great outcry on all sides of there being a scarcity of flowering plants with which to decorate the conservatory. This is more imaginary than real. There are hosts of plants which, if they had justice done them, would go far to enliven the conservatory, and relieve the monotonous appearance which those structures present that have not a stove to supply them with fine foliage plants through July and August. In the ordinary course of things, I do not agree with growing indoors those plants which are quite hardy and do not require protection; but I have three old subjects, two of which are nearly forgotten. The present generation of horticulturists are so taken with the gaudy colouring of the flower-garden, and all are so anxious to outdo their neighbours in the brilliancy of the display, that they have little time and less room to grow many plants that are considerably more beautiful than huge masses of scarlet and other coloured geraniums. The first subject that I am desirous of calling attention to is grown at present rather extensively out of doors, on account of the usefulness of its flowers for making winter bouquets. Helichrysums have long been favourites with all classes for the above-mentioned purpose, and are treated accordingly. I shall therefore have nothing to say about that mode of growing them. It is not generally known that they make the prettiest plants imaginable grown in pots for indoors. All plants raised from seed vary more or less in the quality of the flowers, and have a certain amount of grossness about them, which those raised from cuttings are free from. To make the most of the Helichrysums for this kind of work, they should be raised from cuttings. The cuttings should be put in at once, and treated exactly the same as cuttings of verbenas, heliotropes, and plants of that class. It is a very good plan to make sure of cuttings by cutting back a few plants of those with fine flowers. They will soon push again, and a plentiful supply is the result. The cultivation is extremely simple. Instead of leaving the cuttings crowded together the same as those plants mentioned, they should be potted off soon after they are rooted into three-inch pots, kept in them all the winter, and receive the protection of a pit or greenhouse sufficient to keep the frost from them. In March they are transferred into five or six-inch pots at the option of the cultivator, and in these they are allowed to flower, which they do beautifully through July, lasting a surprisingly long time in a capital condition. Good loam mixed with a liberal proportion of rotten manure is all that they require in the shape of soil. With very little trouble, pretty little plants about a foot or eighteen inches high, and with heads of bloom as much through, can be had in any quantity. *H. Compositum maximum*, and its three varieties, with rose, scarlet, and yellow flowers; *H. Macranthum*, *H. Macranthum nanum*, and *H. rubrum*, are all good.

Trachelium caruleum is the next subject to handle. It has been

in this country over two hundred years, having been introduced about the year 1640, and is perfectly hardy. Perhaps I had better give a short description of what kind of plant this is, for so few people know anything about it. Not more than one gardener in every hundred could tell me whether it is an exotic, orchid, or an alpine; but it happens to be neither. It is an herbaceous perennial, with moderate-sized leaves of a dark-green colour, and something like *Coleus Gibsoni* in shape. It is rather a dwarf grower until it is coming into flower, when the flower-stalks run up from one to three feet in height, according to the strength of the respective plants. The flowers are dark blue, rather small, and produced in enormous heads ranging from four to twelve inches across. So much for the description, which conveys but a poor idea of its beauty. Now for a few words about growing it, and I hope to be sufficiently clear to be understood.

*Trachelium*s can be increased in two ways; the first is by seeds and the second by cuttings. It is of very little use to say anything about the latter method; nobody has plants to cut from, or at all events next to nobody. I know of but two gardeners who grow it, and I dare say they might get up a few thousands, for I am sure that, since they have become fully alive to its value for conservatory decoration, they have grown it largely. Raising a stock from seed is the simplest way to deal with them, and the one I shall recommend. The first thing to do will be to invest threepence or fourpence in a packet of seed. I forget the exact price. I suppose most of the large houses would supply it, but I can only find it entered in Carter's and the two Hendersons' catalogues. The seed should be sown at once in a pan, in the same way as cinerarias, use the same kind of soil. Prick off into small pots when the plants are large enough to handle, keep them in these until February, and then shift into 32's, or, if extra-sized plants are wanted, into 24's. Use much the same kind of soil as advised for the everlastings; keep in cold frame until the coldest of the weather is past, when they can be brought out of doors, and placed in a shady position or grown indoors. Where the room is limited, the best way is to bring them out of doors. I need not go into minor matters at any length, for the treatment which the cinerarias receive will suit it up to the time the plants are brought out of the houses. All that is necessary to be done after then is to keep the plants well watered, with a taste of manure-water now and then, and support the flower-stalks with neat sticks to prevent their getting broken about. The plants should be removed into the conservatory directly the flowers begin to expand, for rain and wind will injure flowers of every description when fully expanded. As a matter of course, it is as well to keep them good and in a fresh condition as long as possible.

The last subject that I shall notice is the beautiful *Eucomis undulata*. This equals many of the orchids in point of beauty and fragrance when done well. This is not half so much grown as its beauty deserves, especially as it flowers in August, when indoor flowers are considered scarce. The reason of this not being grown so extensively as its merits deserve, is simply because many people

fail in blooming it. No bulbous plant will flower satisfactorily if always kept growing without a rest, which is the way this plant is treated by the general run of cultivators. Pot in good loam and rotten dung, give plenty of water when growing, grow in cold pit close to the glass and plenty of air, and you will have spikes of bloom two feet in length, irrespective of the bare portion of the stem. After the plants have done flowering, dry off, and lay the pots on their sides under the greenhouse stage. This is quite hardy if planted deep close to the foot of a wall, or along the front of the greenhouse. The flowers are rather small, pale flesh-coloured, which changes to green, and they are deliciously fragrant.

W.

THE VILLA FRUIT-GARDEN.

BY GEORGE GORDON.



TSHOULD fancy that in few places would a liberal supply of good fruit be more acceptable than in the villa; but it is seldom one meets with a fruit-garden attached to this class of structure; and where a portion of the garden is set apart for fruit-growing, it is generally in such a wretched condition through bad management, that I apprehend disappointments are more plentiful than fruit. The space at disposal is limited, and what there is is invariably made little use of. I do not for a moment expect to find people who are engaged in business throughout the day to be as great adepts in fruit-growing as professionals, who have been in the garden and amongst fruit all their lives, but I do think that many who have a garden, and manage it themselves, may do better than they do. I do not expect that I shall be able to teach all that must be known upon the subject, to transform them into first-rate fruit-growers, but I hope to be able to give a few hints that may be useful, and serve as a guide to those who are inclined to go into the subject in earnest. It is surprising what one can do with but the merest superficial knowledge, if the mind is given to the matter in hand, and pays close attention to it, whatever it may be. I have often taken plants in hand to grow that I have known nothing about, and succeeded with them beyond my most sanguine expectations, by watching them, and giving them what little attention they required, when I was they needed it. A close observation of this kind would enable the merest novice to grow tolerable fruit, which, if followed up, would undoubtedly enable him to excel in the production of good fruit. Many growers of both fruits and flowers fail in realizing their expectations, simply because they fancy they know everything about the subject, and give themselves very little trouble in carrying their knowledge into execution. Much better results can be obtained in all gardening matters by knowing little, and doing that little well, than by knowing much and doing little. At all events, I have found

it so, and I have no doubt but that many other opinions coincide with my own.

As the space for fruit-growing is generally limited, we must make the most of it, and grow trees that we can have full command over, and that will give us the most fruit in the least possible space. Large standard trees, such as we see growing in orchards, are therefore of little use; they take up too much room, and if they are inclined to grow away too vigorous, we cannot well do much to them. Pyramidal-shaped trees are decidedly the best, and then a greater variety can be had, and their roots pruned and kept in subjection. I shall not go into every item connected with the management of every individual fruit, for the general treatment differs so little, that it would be taking up valuable space unnecessarily.

The most useful fruit to grow are apples, pears, plums, and cherries, and certain varieties succeed well either as espaliers or pyramids. The first-named mode of training the trees is best adapted for planting by the side of walks in the kitchen-garden, where they take up but little space, and at the same time supply the proprietor with a good supply of fruit. Pyramidal trees can be grown either by the side of the walk, or planted in quarters by themselves. Where the ground can be spared, I should recommend a quarter to be planted; and at the same time, whether I had a fruit-garden or not, I should plant a selection of pyramidal trees by the side of the main walks in the kitchen-garden. Planted at a distance of about six feet apart, they present a beautiful appearance throughout the summer, and give a touch of poetry to that prosy part of the premises. A few of the handsomest-shaped trees may be planted on the lawn, and thus we have beauty and utility combined. The greatest difficulty we have in selecting a proper site for the fruit-garden is in finding an open position, as the whole of the garden is so often smothered up with large trees. It is not only the shade from the branches that does mischief, but the roots which support them extend themselves far and wide, and drain almost every particle of nourishment from the soil. We will, however, suppose that an open position can be found, and what has to be done to fit it for the reception of the trees in a great measure depends upon the nature of the soil that has to be dealt with. Poor, light soil should have a good dressing of rotten manure; and if a dressing of heavy, holding loam could be afforded, a dressing of six inches will be of immense benefit to the trees. A good dressing of heavy clay will also be valuable, if it is well mixed with the natural soil. I have often been able to get the clay which is dug out of the cellars of houses that were being built, for the cost of carting away. It has, as a matter of course, to be brought from some little distance, for it will not be wanted in neighbourhoods where the subsoil consists of clay. Where clay is used, it ought, if possible, to be spread over the surface the whole of the winter months, to get it well pulverized. Where the soil is heavy and cold, a good dressing of road scrapings and decayed and charred vegetable refuse will be of the most service. Some soils are naturally rich enough for fruit-

growing, and require no manure when the trees are first planted. To prepare the ground for planting the trees, it should be trenched up two or three feet deep; but it will be seldom the subsoil will admit of the first-named depth being exceeded; and it is no use to bury the good soil, and bring a lot of gravel or clay to the surface.

After the trenching of the ground is completed, the trees can be planted, and the earlier it is done this month the better. They will then get nicely rooted before the winter, and be ready for growing away in the spring, instead of having to make roots, as is the case with spring-planted trees. Straight clean-looking trees, about four feet in height, nicely furnished with branches to the bottom should be selected. I would sooner myself pay sixpence more for a clean healthy tree than for an old scrub, such as I have often seen palmed off upon those who know little about buying trees, for a trifle less than the regular price, with the assurance that they will soon recover. When the trees are brought home, they should be laid in by their heels, if it is not convenient to plant them at once; for it injures the trees to a frightful extent when the roots are left several hours, much less days, exposed to the air. Six feet from row to row, and six feet apart in the row, is a good distance if the trees are planted in a quincunx manner, thus:—

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which will give as great an amount of room to each tree as they possibly can have in the space. The holes should be made about three feet in diameter, and nicely prepared by putting in the bottom a little of the well-pulverized surface soil for the roots to rest upon. Previous to doing this, place, at a depth of eighteen inches or two feet below the point where the roots will be when the planting is completed, a large stone, or several small ones, to prevent strong tap roots from running down into the uncongenial subsoil beneath. The roots must be spread out regularly on all sides, and then a little more of the fine surface-soil over them, and the holes finally filled in. The soil should be well trodden, to keep them in their proper position. The trees never root freely into the soil when it is filled in loosely, and get blown over in consequence of having nothing to hold them up.

Before going any farther, I had better say that the apples should be on the Paradise stock, the pear on the quince, and a few of the cherries, such as Morellos and May Dukes, on the Mahaleb. The above-mentioned stocks have the advantage of dwarfing the trees, and bringing them into a fruiting state much earlier than on the stocks ordinarily employed. It would be impossible for us to keep the pear stock, or apples on the crab, in full bearing at the size we want them; for the more we pinched, the stronger would the wood be, and the less fruitful. The whole of the trees should be root-pruned or re-planted once a year, or at the most once in every two years. This causes them to make short stubby growths, with an abundance of flower-buds, instead of thick, watery shoots,

that are of no use for fruit-bearing. Root-pruning is performed by opening out a trench round the tree at a distance of eighteen inches from the stem. The spade should be thrust under the tree so as to sever every root growing in a perpendicular direction; and the horizontal roots, which can be got at by means of the trench, must be cut back with a pruning-knife. An additional three inches from the stem should be allowed at every operation, until the full extent of ground belonging to each tree is reached. At this stage the cultivator must content himself with simply opening out the trench, pruning back the roots, and filling in the trench. By these simple means we have trees supplied with an abundance of fibrous roots, capable of taking up any amount of food they can get. Near the surface, and under the influence of the sun and air, I give my trees a mulching of good rotten manure in the summer, and this, with the hoeing necessary to keep down the weeds, and the traffic passing over it to attend to the trees and fruit, gets into fine order for filling in the trenches along with the soil. The goodness which is washed from it by the rains is highly beneficial in assisting the fruit to swell off, through the end of the summer. Whether the trees are to be root-pruned annually or biennially must be determined by their degree of vigour. The stronger the growth, the oftener must the root-pruning be performed, so as to keep it within bounds.

I must now say a few words about the pruning and training, and then pass on to naming a short selection of the best kinds to grow. The most important point to study is the summer pinching, for if that is properly done very little winter pruning will be necessary. I am in doubt as to whether I shall be able to make myself understood in describing the pruning, but I will be as intelligible as I can. As I have said before, it will be best to procure trees grown into shape, and then there will be little difficulty in dealing with them. In the first place, the leader which was pruned in the winter or spring will produce several side-shoots, which must be pinched back in June to within four or five leaves from the base, one being allowed to grow perpendicular as a leader. This should be shortened back to about six inches in August. The side or horizontal branches must be treated in much the same way. One of the shoots which has the most horizontal direction should be selected as a leader, and the others pinched back to four leaves, in June. The leaders must be shortened in August, leaving them about six inches in length; and if any of the June pinched shoots push again, pinch the young growth back to a couple of inches, but with free-growing leaders they will seldom push again the same season, and instead form flower-buds for producing fruit the following season. I have named six inches as an average length for shortening the leading branches back to, but strong-growing trees should be cut to eight inches, medium growers to six inches, and slow growers to four inches. A little observation will soon enlighten the cultivator upon all these minor points. Very little winter pruning will be required beyond thinning out a few of the small branches, and shortening a few of the leading ones, to make the trees symmetrical and the growth

balanced. If any of the trees are inclined to grow too compact, a few of the leading branches ought to be drawn out and fastened with a few stakes, to let light and air into the centre of the tree. Every one who takes an interest in his garden should have a good garden engine, for washing the foliage of the shrubs on the lawn and the foliage of the plants in the beds. But it is doubly necessary if it is desired to excel in fruit cultivation, more especially if the garden is in the vicinity of a large town. The leaves get covered with dust and soot, which seal up every pore, thus rendering respiration impossible. A good wash overhead with a garden engine will cleanse the trees, and keep them in capital health, and at the same time be a nice exercise for the operator. Pasteboard syringes are useless; they cause a large amount of fatigue, soon get out of order, and do but little good. A few modifications of the pruning the different fruits may in one or two instances be necessary, but in the main what will suit one will do for the other; so that it is not necessary for me to go through the whole routine of every one.

Fruit gathering and storing is but little understood, therefore I had better say a few words about it, although I feel that I am taking up too much space already. Plums and cherries are, of course, gathered when they are quite ripe; but apples and pears, even the early sorts, are best gathered before they are ripe. I find the early sorts are a far better flavour and much juicier when gathered, and allowed to ripen in a room. The late-keeping sorts must be gathered when the pips are dark brown or black, and the stalks part readily from the trees. About the last week in September and the first and second in October is the best time for gathering the general crop of late sorts. As a rule, the fruit is fit for gathering when the stalk will part from the tree by simply lifting it up, but without pulling. They should be carefully gathered and conveyed to the fruit-room in baskets without bruising, and spread out singly on the shelves. I keep lots of my fruit on the floor of a spare room, and I find it keeps very well; but a proper fruit-room is the best. The main thing is to keep the room dark and at an equable temperature. If the apple-trees should get infested with American blight, "Fowler's Insecticide," mixed according to the directions accompanying it, or Gishurst's Compound, sixteen ounces to the gallon, and applied with an ordinary painter's brush, are capital remedies.

In giving a list of sorts, I would just remark that the sorts should be kept together, and not all mixed up, as is often the case. All the following kinds will do on the stocks I have mentioned above, and as pyramids in the open quarters, excepting in the north, where the choicest kinds of all the fruits require a wall to bring them to perfection. It may be as well to observe, that none of the trees should be over-cropped, or the fruit will be small and poor in flavour. It should be judiciously thinned out, directly the fruit is large enough for the cultivator to see which will stand. We will begin with the

APPLES.—*Twelve dessert apples*—White Juneating, Quarrenden, Kerry Pippin, Early Nonpareil, Cox's Orange Pippin, Ribston

Pippin, Sam Young, Golden Pippin, Court of Wick, Golden Harvey, Reinette du Canada, Sturmer Pippin.

Twelve kitchen apples—Hawthornden, Cox's Pomona, Emperor Alexander, Blenheim Orange, Lord Suffield, Mere de Menage, Dumelow's Seedling, Rymer, Bedfordshire Foundling, Northern Greening, Baxter's Pearmain.

CHERRIES.—May Duke, Elton, Black Tartarian, Late Duke, Kentish, Morello. The two last are the best for culinary purposes.

PEARS.—*Twelve dessert pears*—Doyenné d'Été, Jargonelle, Bon Chretien, Louise Bonne of Jersey, Marie Louise, Autumn Nelis, Glou Morceau, Winter Nelis, Knight's Monarch, Josephine de Malines, Easter Beurre, Madame Millet.

PLUMS.—*Twelve dessert plums*—Green Gage, Early Favourite, De Montfort, Denniston Superb, Kirkes, Jeffreson, Huling's Superb, Purple Gage, Transparent Gage, Guthrie's Late Green, Reine Claude de Bavay, Late Black Orleans.

Six kitchen plums—Early Prolific, Prince of Wales, Victoria, Diamond, Belle de Septembre, Autumn Beauty.

I have arranged the above selections in the order of ripening, thinking that plan preferable to an alphabetical arrangement; and it would be better to plant several of one kind, than to have large collections, some of which are good in name only. But in the above I have by no means exhausted the lists of good kinds, as there are many more worth growing.

ARCTOTIS GRANDIFLORA ARGENTEA.



IN the spring of 1867 I got two small plants of this new bedder. I kept them in the greenhouse, in six-inch pots, till summer. In June, 1867, I put one plant in a cold frame, and left the other in the house. In October I took the plant which was in the frame, and placed it in the greenhouse. In March, 1868, the plant which had been kept in the cold frame during the previous summer looked well, and many of the branches had made roots at their joints; the other plant of *Arctotis* died.

Last April I made several dozens of cuttings. Most of them had roots to begin with, but all grew rapidly, and in the beginning of May I had good-sized plants sufficient to fill a bed, and some to spare. I planted them out. The old plant looked very bad at this time; I took it out of the pot, and put it in the open ground, where it soon recovered, and now measures four feet across. It grew to this size without care, for during the past scorching summer I never even watered it.

The *Arctotis* plants bedded out, although near a south wall, exposed to the full blaze of the sun and never watered, did not suffer, they never flagged; in fact, water was so scarce that I had

none to put on them; consequently, in the other beds, *Lobelia*, *Poa trivialis argentea*, *Perilla*, *Tropæolums*, etc., all died of drought and excessive heat; even plants of *Arabis* and *Cerastium* were killed.

The *Arctotis* is not spoiled by flowering; it is always close and compact, the roots at the points keep it pegged down (it is the same height as *Lobelia speciosa*); it does not flower very freely, but the flowers are excellent for bouquets, being large and handsome, cream colour, with black centres; its stems are white. N. C.

NEW PLANTS.



ERANTHEMUM ASPERSUM, *Speckled-flowered Eranthemum* (*Bot. Mag.*, t. 5711).—Acanthaceæ. A beautiful stove shrub sent from the Solomon Islands by Mr. John Veitch, and flowered at Kew in March last. It is of slender habit, with ovate leaves of dark green colour, and flowers which differ from those of other species in the straight, slender, corolla tube, white limb, speckled with purple, and one lobe almost wholly purple, giving the flower the appearance of an orchid.

STROPHANTHUS CAPENSIS, *South African Strophanthus* (*Bot. Mag.*, t. 5713).—Apocynæ. A handsome evergreen climber, admirably suited for a conservatory



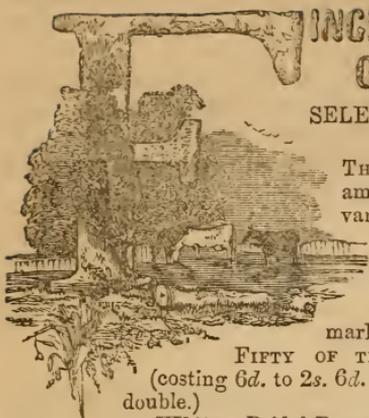
ERANTHEMUM ASPERSUM.



STROPHANTHUS CAPENSIS.

wall or pillar. The leaves are two to three inches long, and a half to two-thirds or an inch broad; flowers in terminal cymes, corolla lobes ligulate from a broad base, bright yellow, with dark orange spots at the base. An interesting and valuable acquisition.

LONICERA STANDISHII, *Standish's Honeysuckle* (*Bot. Mag.*, t. 5709).—Caprifoliaceæ. A twiggly deciduous shrub, with small white fragrant flowers, which are produced early in the year—a companion plant to the now well known *L. fragrantissima*, and in general characters resembling that species.



INGER-POST FOR PURCHASERS OF PLANTS, SEEDS, ETC.

SELECTION OF BULBS FOR THIS SEASON'S PLANTING.

THE following selections are intended to assist amateur cultivators who wish for the very best varieties in the several classes without having to pay extravagant prices for them. They are all selected with a view to distinct and bold effects, the purest colours, the best habits, and the most perfect forms. (The best for small collections marked thus*.)

FIFTY OF THE FINEST HYACINTHS FOR POT CULTURE, (costing 6d. to 2s. 6d. each, the majority averaging 1s. s, single; d, double.)

White.—Bridal Bouquet, s; Grand Vainqueur, s*; La Candeur, s*; Madame Van der Hoop, s; Prince of Waterloo, d; Reine Blanche, s.

Blush and Shaded White.—Bouquet Royal, d; Elfrida, s; Grandeur à Merveille, s*; Lord Wellington, d*; Norma, s; Tubiflora, s; Voltaire, s*.

Dark Red and Crimson.—Fireball, s; Herstel de Vrede (Paix d'Amiens), s; L'Ami du Cour, s*; Mademoiselle Rachel, s; Milton, d*; Mrs. Beecher Stowe, s*; Robert Steiger, s*; Sir Joseph Paxton, d; Von Schiller, s*.

Pink and Rose.—Alida Catherina, d; Belle Quirinée, s; Chapeau de Cardinal, s; Frederick the Great, d; Il Pastor Fido, d; La Dame du Lac, s*; Lord Wellington, s*; Monsieur de Feash, s*; Queen Victoria, s.

Yellow.—Anna Carolina, s; Alida Jacobea, s.

Light Blue.—Blocksberg, d*; Couronne de Celle, s*; Grand Lilas, s*; Porcelain Sceptre, s; Van Speyk, d.

Blue Shades.—Madame Marmont, d; Argus, s; Baron Von Tuyl, s*; Charles Dickens, s*; Keizer Ferdinand, s; Orondates, s*.

Purple and Black.—Keizer Alexander, d; Mimosa, s*; Othello, s; Prince Albert, s*.

TWELVE FINEST NEW AND SCARCE VARIETIES (costing 3s. to 7s. 6d. each).—Florence Nightingale, s, pink and carmine; Cavaignac, s, salmon and rose; Howard, s, orange-crimson; La Prophète, s, pale pink; Macaulay, s, deep rose; Princess Clothilde, s, pink and carmine; Paix de l'Europe, s, pure white; Bleu Aimable, s, blue; Marie, s, purple; General Havelock, s, purplish-black; Ida, s, deep yellow; Rembrandt, d, dark blue.

TWELVE BEST CHEAP VARIETIES FOR POTS, GLASSES, OR BEDS (costing 6d. to 9d. each).

White.—La Tour d'Auvergne, Victoria Regina.

Red.—Waterloo, Amy, Mons. Feash, Robert Steiger.

Blue.—Blocksberg, Prins Van Saxe Weimar, Bleu Mourant, Nimrod.

Black.—Prince Albert.

Yellow.—Koning Van Holland.

NINE VARIETIES OF POLYANTHUS NARCISSUS.

Apollo, yellow self.

Newton, fine yellow, first-rate for pots.

Soleil d'Or*, yellow with orange cup, fine.

Bazelman major, white with yellow cup.

Gloriosa superba*, white with yellow cup.

Grand Primo, white with citron cup.

Paper White*, pure white, superb.

Roman*, double white and yellow.

Staten General, white with yellow cup.

SIX VARIETIES OF GARDEN NARCISSUS.

- Albus plenus odoratus*, pure white, deliciously scented.
 Van Sion*, fine dwarf double daffodil.
 Bulbocodium*, fine gold-yellow, fine for borders or pots. Snails are fond of it.
 Tenuifolius, gold-yellow, distinct.
 Trumpet-Major, deep yellow.
 Poeticus*, pure white, cup variegated with red.

TWELVE VARIETIES OF EARLY TULIPS (Single).

- Bride of Haarlem, bright rose, flaked white.
 Brutus*, deep red, fine.
 Canary Bird*, pure yellow.
 Couleur Cardinal*, flamed scarlet.
 Couleur Ponceau, white and bright rose.
 Duc Van Thol, five varieties, scarlet and yellow the two most useful.
 La Pluie d'Or, fine yellow.
 Pottebakker*, gold striped, white, and yellow, all first-rate.
 Rosa Mundi, rose.
 Thomas Moore*, orange.
 Vermilion Brilliant*, crimson.
 Yellow Prince*, yellow, a first-rate bedder.

EIGHT VARIETIES OF EARLY TULIPS (Double).

- Belle Rouge, white flaked rose.
 Bonaparte, dark purplish-crimson.
 Duc Van Thol, scarlet and yellow.
 Gloria solis, red, yellow margin.
 La Candeur, pure white.
 Rex Rubrorum*, crimson.
 Rose Eclatante, dark red.
 Tournesol*, two varieties, one yellow, the other red, with yellow margin.

TEN VARIETIES OF CROCUS

Barr's New Golden*, the best yellow for masses and pots, averaging 12 to 24 flowers each bulb.

- Albion, striped blue and white.
 Caroline Chisholm, pure white.
 Cloth of Gold*, yellow, striped back.
 David Rizzio*, dark purple.
 General Garibaldi, very dark purple.
 Ne Plus Ultra, dark purple, white margin.
 Prince Albert*, violet.
 Queen Victoria, pure white.
 Romulus, dark blue.
 Sir Walter Scott*, white and blue;

For bedding in quantities, where price is an object, the best are common yellow, common blue, and common white. The named sorts make charming pot plants for spring flowers. In potting, place four or five bulbs in a 48-sized pot, but if Barr's New Golden is grown, they may be potted three in a 48, or one in a 60 pot, as the bulbs are extra large.

TWELVE BEDDING RANUNCULUSES.

- Commodore Napier, yellow, edged red.
 Fireball, dark scarlet.
 Ophir d'Or, yellow.
 Prince de Galitzin, yellow, edged brown.
 Sunflower, bright yellow.
 Black Turban, black.
 Gold Turban, gold.
 Turban Hercules, white.
 Turban Merveilleuse, yellow.

Turban Romano, scarlet.
 Turban Seraphique, citron.
 Turban Suaveolens, orange.

TWELVE VARIETIES OF DOUBLE ANEMONES.

Admiral Zoutman, dark blue.
 Azure Incomparable, blue.
 Blanche et Rouge, red and white.
 Cœlestina, blue.
 Colour de Sang, red.
 Feu superbe, scarlet.
 High Admiral, scarlet.
 Lightning, scarlet.
 Lord Palmerston, puce.
 Prince de Joinville, scarlet.
 Rose surpassante, rose.
 Salvaterre, orange, red, purple.

HORTICULTURAL AFFAIRS.



CRYSTAL PALACE AUTUMN SHOW OF FRUIT AND CUT FLOWERS, AUGUST 26.—The grand autumn show of fruit and cut flowers, held under the auspices of the Crystal Palace Company on the above date, evinced no falling off either in the quantity or quality of the fruit, but the long-continued drought, in combination with the excessive heat of the past summer, had visibly affected that portion of the exhibition devoted to the cut flowers. There was probably not more than one half the numbers of entries as in former years, in any of the classes. It is not to be wondered at, for in many parts of the country hollyhocks and gladioli were more than a month earlier in their season of flowering than last year. Strange to say, nearly the whole of the collections were first-rate, with the exception of the roses, which proved pretty clearly that the exhibitors had taken no little pains over their productions; and we confess to feeling a little surprised at seeing the wonderfully fresh condition of the subjects exhibited in the winning stands, more especially the dahlias and gladioli. As the space at our disposal is so limited, we can do little more than enumerate the names of the varieties in some of the prize stands, which, after all, will perhaps be as useful as though we were to offer a long commentary on each.

Dahlias.—In the trade classes, Mr. H. May, Bedale, Yorkshire, contributed some grand stands, and took first for forty-eight, and twelve fancies, and second for twenty-four; Mr. Keynes, Salisbury, also had several good stands, taking first with twenty-four, and second with forty-eight, and twelve fancies.

Cut Blooms exhibited by amateurs were not equal in finish to those staged by the trade, though they were much better than could reasonably have been expected, with the season we have had. The principal competitors were Mr. J. C. Perry, The Cedars, Castle Bromwich; Mr. Draycott, gardener to T. T. Paget, Esq., M.P., Humberston Hall, Leicester; Mr. T. Beck, Wimbourne, Dorset; Mr. Perry being first with twenty-four, and twelve fancies, with Mr. Draycott second in the first class, and Mr. Beck in the second. In the other twelves, Mr. Draycott first; Mr. Burfett, gardener to C. Lambert, Esq., Wandsworth Common, second; Mr. Hopkins, New Brentford, third; and Mr. J. C. Perry, fourth.

Gladioli were next in importance to the dahlias, and the grand stands from Messrs. Kelway and Son, Langport, who were first with twenty-four spikes, and the best collection of seventy-two, were much admired. Altogether, the Gladioli were one of the most attractive features of the whole exhibition. In the twenty-fours, Messrs. Downie, Laird, and Laing, Stanstead Park Nursery, Forest Hill, were second; Mr. Bunyard, jun., Ashford, third. Messrs. Paul and Son, Cheshunt, also contributed a fine stand. In this collection, Mr. Bunyard was second. The amateurs' classes were rather sparingly filled. The Rev. E. H. Dombrain, The Vicarage, Westmell, Ashford, had the best varieties in the twenty-fours, therefore

we shall name them, and say nothing about those in the collections, or we shall make this report too dull and tedious, were it possible for anything to be dull in connection with these lovely flowers.

Messrs. Kelway and Son's First Prize Twenty-four.—Mrs. Henslowe, Princess Frederick William, Fulton, Napoleon III., Impératrice, Arabella Goddard, Félicien David, Madame Basseville, Eurydice, La Quintinie, Molière, Madame Adolphe Brogniart, Etendard, Ulysse, McMahon, Meyerbeer, Mathilda de Landevoisin, Cassandra, James Veitch, Norma, Le Dante, Le Poussin, Marina.

Messrs. Downie, Laird, and Laing's Second Prize Twenty-four.—Anais, John Waterer, Oscar, Stella, Janier, Etendard, La Favorite, Molière, Eurydice, Fulton, Seedling No. 1, Madame Furtado, Naomi, Madame Leroy, De Candolle, Le Dante, Mathilda de Landevoisin, Meyerbeer, Madame Vilmorin, Seedling No. 3, Maria, Molière, Prince Frederick William, Seedling No. 2, Duchess of Poitou.

Rev. E. H. Dombraïn's First Prize Twenty-four (Amateurs).—Mrs. Dombraïn, Madame Perier, Le Poussin, Galilee, Eurydice, Lord Byron, Penelope, Charles Dickens, Molière, Stella, Mozart, Eugène Scribe, Lord Raglan, Sir Joseph Paxton, Princess Alice, Marie Dumontir, Belle Gabrielle, Edulia, Meyerbeer, Stephenson, Duc de Malakoff, La Fiancée, Semutamis.

Hollyhocks.—The Rev. E. Hawk, Willingham Rectory, Gainsborough, took first, both for twelves and twenty-fours, with stands in which every bloom could be taken as a model of what a good Hollyhock ought to be. The varieties were as under, the others being seedlings:—Exhibitor, Willingham Defiance, Charles Eyre, Willingham Model, Octavia, Eldorado, Rose Amour, Gem Nonpareil, George Keith, E. Speed, Queen of Yellows, Hercules, Ruby Queen, Mrs. Downie. All the seedlings were good, and several first-rate.

Roses, as we have already said, were poor, both from amateurs and trade growers. Messrs. Paul and Son, Cheshunt, Mr. G. Clark, Brixton Hill, and Mr. Coppin, Croydon, in the trade; and Mr. Exell, Maidstone, and Mr. Draycott, Leicester, amongst amateurs, were the principal representatives of this lovely flower.

Asters of excellent quality were contributed by Mr. Sandford and Mr. Day, of Walthamstow, and Mr. Reid, Sydenham Hill.

Verbenas.—In the classes for twenty-four bunches, Mr. J. C. Perry first, with splendid trusses of the under-mentioned in the most beautifully-fresh condition, affording a striking contrast to those in some of the other stands:—Interesting, Magnifica, James Birbeck, Startler, Richard Dean, Lilac King, Apollos, Madame Hermann Stenger, Foxhunter, Kate, J. C. Ward, Rose Imperial, Annie, Monsieur Toxteau, Mazepa, Harry Law, Lord Leigh, Wonderful, Little Clara, Champion, Seedling, Light Blue, Géant. Mr. Perry also staged a stand of seedling Verbenas. The undermentioned magnificent varieties were awarded first-class certificates:—*Rev. Reynolds Hole*, white, with fine crimson eye; *Mrs. Pochin*, fine deep rose, shaded with violet; *Spot*, fine large salmon-coloured flower, with bright reddish-scarlet eye. Messrs. Downie, Laird, and Laing exhibited a stand of their Lady Dix, a beautiful striped kind, in the way of Impératrice Elizabeth, but much larger flowers, and finer in every respect.

There were several good collections of twenty-four bunches of cut flowers of *Stove and Greenhouse Plants*. Mr. Rhodes, Sydenham Park, first, with a grand box, in which were good Dipladenias, Allamandas, Ericas, Orchids, Liliun auratum, and Vallota purpurea. Mr. Woodward, gardener to Mrs. Torr, Ewell, second; Mr. Kemp, gardener to E. H. Beulatt, Esq., Maldon, third; and Mr. Carr, gardener to L. Hinds, Esq., Byfleet. Messrs. Downie, Laird, and Laing had a fine group of plants adapted for sub-tropical gardening; and Mr. Tanton, Nurseryman, Epsom, a magnificent specimen of Allamanda Hendersoni.

The *Fruit* Department was all that could be desired. Good collections came from Mr. Miles, Wycombe Abbey; Mr. Kemp, Guildford; and Mr. Miller, Coombe Abbey, in which were fine Pines, Grapes, Peaches, Nectarines, Figs, and Cherries.

Mr. G. Ward, Bishop's Stortford; Mr. Wright, Regent's Park; and Mr. Laing, Tooting Common, were the principal prize-takers in the classes for Pines.

Grapes were of average merit, with the exception of the prize-takers, which were beautifully finished. For the best dish of black grapes, Mr. Meredith exhibited huge bunches of Black Hamburgs, with fine, large, well-hammered berries, but scarcely up to the mark in colour. Mr. Miller's, which came in second, were not so large in bunch or berry, but more highly finished in shape of bunch and colour.

Mr. Thomas, gardener to Mrs. Childs, Whetstone, a good third. With white grapes, Mr. Osborne, Kay's Nursery, Finchley, first, with richly-coloured bunches of Muscat of Alexandria. Mr. Laing second, with good bunches of the same, but not quite ripe. Messrs. Lane and Son, Great Berkhamstead, third, with fair-sized bunches of Trebbiano. The best competition lay in the baskets of 12 lbs. Mr. Meredith again occupied the first place with beautifully-coloured Black Hamburgs, closely followed by Mr. Miller, Mr. Ward third. Mr. Guyett, Herne Hill, had fine Alicantes, and Mr. Exell, Buckland Sweetwater. Mr. Guyett also exhibited a portion of a vine of the Alicante with seven fine, large, well-coloured bunches. In the class for best single bunch, Mr. Keen, Wickham Market, first, with Buckland Sweetwater, weight 4 lb. 12 oz.; Mr. Douglas, Ilford, second, with Black Hamburg; and Mr. Laing third.

Peaches and Nectarines were shown in the greatest abundance. For dish of the former, Mr. Douglas first, with Exquisite, a fine peach, of a rich, golden colour; Mr. Page, gardener to W. Leaf, Esq., Streatham Common, second, with Teton de Venus, finely coloured; Mr. Miller third, with Padley's Seedling, a fine handsome peach, and deeply coloured. Mr. Rose, Acton; Mr. Birch, Tolmers; Mr. Downing, Norbury Park; Mr. Sutherland, Fulham; and Mr. O. Goldsmith also had fine dishes. The best dish of the latter, Mr. King, gardener to R. Loder, Esq., Slangham, first, with well-coloured Violette Hatives; Mr. Miller, second, with good Murrays; and Mr. Douglas, third, with Pine-apple, a fine, rich, golden-coloured fruit. Mr. Beasley, Mr. Fraser, Lea Bridge, Mr. Broadway, Ealing, and Mr. Miles had fruit deserving notice out of the vast assemblage brought forward.

Figs were principally Brown Turkey, Ford's Seedling, Lee's Perpetual, and Harrison's Seedling. Mr. Willmore, first, with two dishes, and Mr. O. Goldsmith second.

Cherries.—Good dishes were contributed by Mr. Clark, Mr. Sage, Ashridge, and Mr. Goldsmith, the prizes being awarded in the order in which the names are placed. The principal kinds were Belle Magnifique, Morello, Black Tartarian, and Late Duke.

Plums.—There was by no means a scarcity of these, and the examples exhibited were, generally speaking, good. Mr. Simmons, gardener to J. Smith, Esq., Dorking, first, with Washington, Kirkes, and Jeffreson; G. F. Wilson, Esq., Weybridge, second, with Coe's Golden Drop, Greengage, Huley's Superb; Mr. Webb, Culham House, Reading, third, with Golden Drop, Magnum Bonum, Jeffreson; Mr. Bailey, fourth, with Victoria, Prince of Wales, Washington. The above-mentioned were the staple kinds in all the other good collections.

Pears were both abundant in quantity and good in quality. Single dish for weight, Mr. Samuel, Betchworth, first, with King Edward, weight 7 lbs. 4 oz. Mr. Rabbitt, gardener to Lord St. John Milchbourn, second, with Calebasse Carafon. Mr. Goldsmith, third, with fine Catillacs. Single dish for flavour, Mr. Douglass first; Mr. Goldsmith, second; and Mr. Willmore, third, each with Williams's Bon Chrétien. For three dishes, Mr. Holder, Maidstone, first, with Gratiola, Williams's Bon Chrétien, Beurré Clairgneau. Dr. Cooper, Slough, second, with Williams's Bon Chrétien, Beurré d'Amanlis, Duchess d'Angoulême. Mr. Holder, third, and Mr. Goldsmith, fourth.

Apples were none the less extensive than the pears. The principal sorts for dessert being Kerry Pippin, Cox's Orange Pippin, Pennington's Seedling, Newton Pippin, Ribston Pippin, Quarrenden, Red Astrachan, Ingram's Seedling, Sam Young. Mr. Holder, first; Mr. Webb, Reading, second; Mr. Willmore, third; Dr. Cooper, fourth. Kitchen apples consisted chiefly of huge specimens of Lord Derby, Councillor, Lord Suffield, Dumelow's Seedling, Blenheim Orange, Gloria Mundi, Alexandra, Scarlet Admirable, Beauty of Wilts, and Golden Noble. Mr. Chaff, gardener to Alfred Smees, Esq., Carshalton, first; Mr. Geirs, Norwood, second; and Mr. Jones, third.

Mr. Carr had an interesting collection of Water Melons and Gransdillas, and Mr. Webb, Calcot Gardens, Reading, a fine collection of Filberts and Cob Nuts.

GARDEN GUIDE FOR OCTOBER.



E sincerely trust that our readers have had as good fortune as ourselves, since the genial rains of the "second summer." We are now enjoying good dishes of peas from sowings made at the end of July, and late-sown turnips are doing so well that we almost forget how our early sowings all perished. Well, this should be a busy time in every department of the garden, as almost every kind of work usually postponed until winter may now be done, and better done, too, than when frost, rain, and snow interrupt our labours. October is the best month in the whole year to plant hardy evergreen shrubs of every kind, provided the ground is ready; it is a time, too, for planting roses and fruit-trees, and for a grand clean up everywhere, and for beginning works of improvement. Those who hope to see spring flowers when the days are again lengthening, must be busy now in planting and potting bulbs, and in securing stock of all such good things as arabis, alyssum, polyanthus, primula, and other early flowering plants, of which we have given selections so frequently, that we need not even name them now. Any kinds of hardy herbaceous plants may be planted now, and they will be well rooted before frost occurs. Chrysanthemums are fast advancing into flower, and should be in such a state as regards training, etc., etc., as to need nothing but water or weak liquid manure to keep them going right. See that all pits and frames are clean before putting plants into them.

 TO CORRESPONDENTS.

KEEPING LARGE ZONALE PELARGONIUMS THROUGH THE WINTER.—*A Lady Gardener.*—You need experience very little difficulty in preserving the large plants you have standing about on your lawn. They will do very well in your greenhouse. Keep them dry all the winter, with just sufficient heat to keep the frost from them. Early in March, cut them back, and directly they begin to push, take them out of the pots, remove a portion of the old soil, prune the roots, and repot in the same sized pot. Use good fibry loam, mixed with a little rotten dung and leaf-mould. By this system of management, which is as simple as anything can well be, the plants can easily be kept in a fresh, flowering condition any number of years in the same sized pot. We have kept large plants in outhouses all the winter. The principal point is to get the wood thoroughly ripened before housing. This can be easily effected by withholding the water a few weeks beforehand. The doors should be open in fine weather, and in frosty weather the plants must be laid on their sides, and a good thickness of dry hay placed over them. We would not advise you to prune them now, but you might trim off a few of the straggling branches, if the plants are likely to take up more space than you can spare.

KEEPING LATE GRAPES.—*R. P.*—Keep the house dry, and use as little fire as you possibly can to effect this. Houses in which grapes are to be kept through the winter ought to have no plants growing in them, as the dampness arising from the watering which has to be done has necessarily a very prejudicial effect upon their keeping qualities. Look over the branches occasionally, and thin out any of the berries that show the least sign of mouldiness, for one will soon affect the other.

REMOVING LEAVES FROM WALL TREES.—*Poma.*—After there has been sufficient frost to affect the leaves, so that they part readily from the branches, you may go over them lightly with a new birch-broom, to remove a few to expose the wood more fully to the light and air. Work the broom in the same direction as the buds, and use it very lightly, so as to remove those only that are fully matured, or you will do more harm than good. We have often swept a few of the ripest off in cold seasons, when the wood is not so ripe as it should be.

PRUNING LAURESTINUS.—*F. G.*—If you prune these now, you will cut away all the flowering shoots, and instead of having handsome bushes full of flower, you will have nothing but skeletons of old and bare wood. If they should happen to break this autumn, which probably they would do, the growth would be tender, and the

frost would certainly nip it off. Laurestinus are by no means the hardiest of shrubs, and when cut down at this time, or through the winter, they frequently die altogether. Besides, should we have a winter sufficiently severe to injure the younger branches, they will protect the large ones, which will break freely in the spring, and soon make nice bushes again. Your best time for pruning them will be the first or second week in April, when you can cut them to the desired shape.

TAKING UP PLANTS OUT OF THE FLOWER BEDS.—*An Old Subscriber.*—You must take up the geraniums which you wish to preserve, at once. Apart from the danger of frost, you will run greater risk of their perishing after they are potted, the longer you allow them to remain in the open ground. You can leave the cannas in the beds all the winter, without receiving any injury, if you cover them with a good thickness of some protecting material. Cocoa-nut refuse answers admirably, but we prefer a good thickness of dry leaves—say a foot deep over the bed—and covered with six inches of soil, to keep them dry, and to prevent their being blown about. We know of nothing that will resist frost so well as a covering of this description. *Aralia papyrifera* and *Ficus elasticus* must be taken up, and stored in the greenhouse. The Tobaccos, *Solanums*, and Castor Oils should be consigned to the rubbish heap as soon as they get unsightly, for you can raise any quantity of them from seeds next spring.

HEATING GREENHOUSE.—*E. R.* has just completed his greenhouse, which is a span roof, forty feet long by fourteen wide, and would be glad of a little information respecting the best mode of heating it, without going to any more expense than is really necessary. He intends growing azaleas, camellias, pelargoniums, and miscellaneous plants. The greatest difficulty that almost all amateurs labour under, is their inability to get sufficient heat to grow their plants properly, and often not enough to protect them from frost in severe weather. We admit that there is more expense attached to fixing a full supply of piping than there is in not half enough, but the extra cost is soon repaid in the saving of fuel. When there is an insufficiency of piping in a house, the pipes have to be kept at an extra heat; and to do this in cold weather, the fire has to be kept at full draught, which can only be done by a great loss of heat, in consequence of its escaping up the chimney. When there is a proper quantity of piping, the pipes can be heated to a moderate degree of heat, and the fire stopped. This will maintain them at that heat for a long time, and consequently nearly the whole of the heat from the fuel is absorbed in a proper manner. Attention to these matters would save plant and fruit-growers an immense amount of labour and anxiety, in daily attention and setting up at night. We should advise you to have a 24-inch saddle boiler, and two rows of 4-inch pipes up each side of the house, close to the wall. You will then experience very little difficulty with the heating part of the question. If you like, you may employ 3-inch pipes instead of 4-inch, and if you cannot really afford more, you can by extra firing keep the frost out with a double row of 4-inch piping on one side only. By all means have the four rows if you can, and you will then have cause to thank us for the advice.

Chucron.—Your plant appears to be *Sedum populifolium*, but from such a mite it is not easy to determine.

C. G., Exeter.—Apply to Mr. Gidney, ironmonger, East Dereham, Norfolk.

MEALY BUG.—*Three Years' Subscriber.*—The very best remedy for mealy bug is Fowler's Gardener's Insecticide, used warm as directed, and the fullest strength allowable. If you do not use this, a remedy that sometimes answers is a mixture of a pound of size dissolved in a quart of hot water, a quart of soot well beaten up with it, and four quarts of water added. After a few days, this must be washed off the plants.

C. G. M.—Brompton stocks will do better planted out than in a pot in the house. The best book for you is "The Town Garden," price 3s. 6d. It contains directions for cultivating all the favourite garden plants, shrubs, etc. etc.

J. S. B., Doncaster.—You can obtain what you require from Messrs. E. G. Henderson and Son, Wellington Road, St. John's Wood.

T.—Yes, the young shoots that push from the base of the old ones are to be pinched off, unless required to keep the vine properly furnished.





NEW DOUBLE-FLOWERING THORN.

THE FLORAL WORLD

AND

GARDEN GUIDE.

NOVEMBER, 1868.

GARDEN THORNS.

WITH FIGURE OF THE NEW SCARLET DOUBLE-FLOWERING THORN.



HERE are upwards of 150 species and varieties of "Thorns" in cultivation, and amongst them all, not one can be specified as undesirable where room can be found for it, and the scene is not unfit. Nevertheless thorns, that is to say, species and varieties of the genus *Cratægus*, may be very fairly arranged in two groups, one of which we should regard as more especially adapted for large spaces, drives, and the margins of woods and shrubberies, and should designate Park Thorns; and the other group, being better adapted for contracted spaces and highly-embellished scenes, we should distinguish as "Garden Thorns." Without respect to any such classification, it is certain that the genus *Cratægus* offers us a remarkable number of beautiful trees of comparatively small growth, whether for the park or the garden, and is the richest in variety of any family of ornamental trees whatever. If distinct examples of such as we regard as park and garden trees are required, we would instance the common hawthorn for the first-class, and the double-flowering thorn here figured for the second. The case might be put in a more striking manner, by selecting for the park the handsome, large-leaved, vigorous-growing cockspur thorn (*C. crus-galli*), and for the garden the elegant yellow-berried, tansy-leaved thorn (*C. tanacetifolia*). To be sure, it is not necessary to institute any such classification at all, but as this is the season for planting ornamental trees, we may render some service to our readers by offering a few remarks on the characters of thorns, and a list of the species and varieties that are best adapted for planting in gardens.

The accepted type of the family, the common hawthorn (*C. oxy-cantha*), is always beautiful, save and except when, in the height of summer, we sometimes find it almost leafless, and covered with the dirty cocoons of myriads of caterpillars. It is one of the first trees assailed when the weather is favourable to vermin, and that is, at least, one reason why it is not well to plant it in the vicinity of

highly finished garden scenes. But in truth the hawthorn requires a great space for its complete development, and considered as an ornamental tree, we need to see it when long years have bowed its head to the ground, and it acquires the grim hunchback character to which the term "creeping thorn" is applied. In old parks and woods, the creeping thorns are sometimes the most interesting and attractive features of the place. If we cannot find such in our rambles in the month of May, we will be content to admire the snowy purity, and rejoice in the spicy perfume, of an old thorn hedgerow, where the beauty of the trees is the result of their assemblage in long waving lines, that give the roads and lanes they enclose glorious fringes of gauzy "may."

Between single-flowering and double-flowering thorns there is a difference that must be noted when selections are made for ornamental planting. The single-flowering varieties are more richly perfumed than the double, and they produce abundance of berries in the autumn; whereas the double-flowering kinds produce none, or so few as to afford no display of autumnal colour. But look at the old thorns now, or call to mind how they have glowed in the landscape since the beginning of August, and rest satisfied that to obtain thorns with double flowers is not quite so grand a feat as at first consideration of the case it may appear. The varieties of *C. oxycantha* have just one decided advantage over the species, that they are not so much disfigured by caterpillars as the species, and as for any other advantage in respect of their employment in gardens, we may as well reckon their less robust growth in their favour.

Thorns will grow in almost any soil and situation. On chalk and gravel they thrive, if there is some depth of earth. On clay they grow vigorously, provided the land is well drained, and in common with all other trees, a fertile, mellow loam suits them admirably, and only in such a soil can they be said to attain perfection as timber trees. In any and every case thorns require free exposure; they will not long live in the shade and drip of other and larger trees. The vigorous berry-bearing kinds may be propagated from seeds, which usually vegetate the first season after sowing, if sown in autumn, though some remain in the ground a whole year or more before they start. But the double-flowering and delicate habited kinds are commonly grafted on the hawthorn, and this system enables the cultivators to produce fine specimens quickly, and of any height up to eight or ten feet. No ornamental tree is more obedient to the pruning-knife; for if spurred close in, they form close compact heads, and flower freely. The small-leaved kinds, however, bear hard pruning best; but unless there are special reasons for forming the head to a certain shape, it is better not to prune at all; then the tree acquires a free graceful aspect, and some of the varieties of pendant habit "weep" to the ground.

CRATÆGUS OXYCANTHA, the common "white thorn," "hawthorn," or "may," is well known for its summer bloom and autumn berries. In the green glades of a well-wooded park, a few ancient thorns are always objects of interest; the best garden varieties are the following:—

C. o. multiplex, the double white-flowered, one of the most effective white-flowering trees of its season, and a charming thing when well grown in a pot, in the form of a small bush, for the conservatory.

C. o. punicea, single scarlet-flowered. The flowers are exceedingly rich in colour, and they emit a delightful fragrance. In autumn the tree is loaded with berries.

C. o. rosea superba, single rose-flowered; a charming tree for the garden, or to flower as a dwarf pot tree in the conservatory.

C. o. rosea flore-pleno, double pink-flowered. A single sprig of its flowers is like a bouquet, the colour bright and cheerful. It is not very fragrant, and rarely produces berries.

C. o. floribus coccineus plenis, double-flowering scarlet. This is the variety represented in the coloured plate. The colour is not a true scarlet, but rather a deep pinkish red, remarkably effective when seen in a mass, supported as it is by an abundant bright green leafage. This splendid thorn was first presented to public notice at the International Horticultural Exhibition of 1866, where it was at once pronounced a valuable acquisition to our collections of hardy flowering trees. The variety first originated as a "sport" in the garden of Mr. Boyd, of Waltham Cross. It was again exhibited at the early summer shows at Regent's Park in 1867 and 1868, by Messrs. Paul and Son, of Cheshunt.

C. Mexicana, the Mexican thorn, is an evergreen species of most elegant habit and free growth, which soon proves an effective specimen on a lawn. The flowers are white, the fruit yellowish; requires plenty of room for full development.

C. lobata pendula, a fast free-growing tree of elegant pendulous outline; the leaves are unequally lobed, the flowers are white, and produced in loose corymbs. Requires plenty of room for full development.

C. o. pendula nova, a new "weeping" variety of hawthorn of extremely elegant habit, admirably adapted for a spacious lawn or for a good open position in the arboretum.

C. pyracantha, one of the finest of all evergreen wall-trees; and rather scarce. Once seen in autumn, with its huge bunches of scarlet-orange berries contrasting finely against its dark green leaves, it can never be forgotten. Why we should so seldom meet with this tree, both in gardens and nurseries, is to us a mystery. It cannot be that there is any difficulty in propagating it, because it may be raised from seed with certainty, and also from cuttings taken at the end of July, and kept close in a pit or frame for six months. We have grown this thorn largely in pots, the trees being moderately shortened back with the knife in autumn, and kept to about three feet in height. In autumn they are covered with berries, and are employed with *Skimmias*, etc., in the plunging system, where they light up the front lines of evergreen shrubs until the spring flowers begin again.

C. tanacetifolia, the tansy-leaved thorn, a fine free-growing tree with deeply-cut leaves, white flowers, and yellow berries.

Less to be regarded as garden trees, yet deserving the first con-

sideration of the planter desirous of enriching the front lines of the shrubbery, and the knolls and slopes of the home park, are such as *C. crus-galli*, and its several varieties bearing large berries, and presenting splendid leaf colours in autumn; *C. Layii*, one of the largest leaved and most distinct of thorns; *C. aronia*, bearing abundance of yellow fruit. A dozen more might be added, but we have named enough for the foundation of a collection. S. H.

NOTES ON SOME OLD FLOWERS.

BY T. WILLIAMS, BATH LODGE, BURSCOUGH, ORMSKIRK.



ANY thanks to Mr. "Crusoe" for his excellent paper on "Spring Flowers," in the September number of *FLORAL WORLD*. We hope that, like his great namesake, he may not be cast away on any desolate island, but live where there are plenty of flowers, that we may hear, now and then, a little about them.

In this paper I intend making a few remarks on some of the things in Mr. "Crusoe's" list, and noticing a few others not mentioned therein.

GENTIANA ACAULIS, or *GENTIANELLA*, "a grand thing where it succeeds," so says Mr. Crusoe, so will everybody else say: what a pity it will not succeed everywhere. In the first place, all the Gentians must have *pure air*, and to flower this charming plant to perfection, it should be grown amongst *stones* and not in *soil*. Everybody must have noticed that when this plant does well, it is generally as an edging to *gravel walks* or in such places. If you want a bed of it mark it out, and pave the surface over with boulder stones, five or six inches in size or larger; brick ends will do for a substitute. Pave it over the same as you see a causeway or the streets paved. When finished rub in a little light soil between the stones, so that the *floor* will appear tolerably level, and then with a sharp stick, dibble in bits of gentian, six inches apart all over, and then leave it alone. In a year or two this bed will surprise you. If *clumps* of this pretty plant are desired in the flower borders, proceed as above: place a pavement of stones in a circle on the surface, about twelve inches wide, soil over and plant as above directed. These elevated little knolls of gentian are charming in the flower borders. This is the way all the choicer kinds of Sedums and Saxifrages, and such things, should be grown, when mingled with other plants. If an edging of gentian is required, place a double row of boulders by line neatly, give the whole a beating with something to render them even and firm, and plant in the interstices between the two rows of stones. Just try, and report upon it by and by.

ARENARIA BALEARICA.—This plant appears not to stand in very high estimation with our friend, who thinks it not first rate. It is certainly not half such a beautiful plant as *A. cespitosa*, being rather

weedy; but perhaps no plant in the world will cover a rockery or any similar place, with a fairy carpet of green so quickly as this plant. Upwards of thirty years ago, I pointed out this little plant as a fine thing for surfacing, nor have I ever seen anything that will beat it; but it is as a *climbing plant* that it appears in all its beauty. If you have a low wall (especially if damp) that you wish to cover, no matter whether stone or brick, dibble in a few bits of this plant at the base, it will clamber up to the height of eighteen inches to two feet in one summer; and a wall covered with pea-green velvet, studded over with ten thousand silver spangles, will give some idea of its appearance. It is astonishing to see this tiny plant sheeting a smooth brick wall, just as we have seen *Ficus repens* in our old stoves. The low brick wall in front of my little greenhouse presents the above appearance annually, and a friend of mine, an ardent admirer of plants, who lives about twelve miles away, and who comes to look at things now and then, always declares that this sight alone is worth the journey.

CALTHA PALUSTRIS (the MARSH MARIGOLD) and *GENISTA TINCTORIA* (the DYER'S BROOM), I have double varieties of both these plants, and the double variety of *Caltha palustris* is one of the choicest plants I am acquainted with. It has a more subdued compact habit than the species, and the double *Genista tinctoria* is a most charming plant to hang from the ledges of rockwork.

LUPINUS POLYPHYLLUS is a noble plant, perhaps a little too strong for very choice borders, but a noble shrubby plant. I grow two charming varieties of it: one called *bicolor* has a portion of the flower white, very handsome; the other, called *alba*, is a very compact plant, the whole spike of the most snowy white, perhaps the most handsome of all the Lupines.

RANUNCULUS ACRIS flore pleno is noticed by our friend "Crusoe" as a tolerable thing. Strange to say, I have but lately made its acquaintance, having for many years grown a plant I mistook for it, and which proves to be *Ranunculus Stevenii*, a far handsomer plant than *R. acris pleno*—in fact, a truly handsome plant of the easiest possible culture.

I find that long evenings allow us to write long articles, and I have written already far more than I intended; the fact is, that when I sit musing on these old flowers, the fire kindles, and it is hard work to blow it out.

AGAPANTHUS UMBELLATUS.—It is not generally known that this plant may be wintered in any place where it can obtain a moderate amount of light, and be kept free from frost. I keep a couple of dozen large plants through the winter months in a place originally intended for a laundry, in which I can keep a fire during frosty weather. The plants are placed on a rough stage raised in front of the window. I stand them out of doors in a sheltered place in April or May, if the weather is favourable. The treatment they receive naturally causes them to bloom late, and they come in at the time they are most wanted. As to soil, I generally pot mine in two parts loam, one part rather rotten dung, with the addition of a little leaf-soil and sand. I reduce them in the spring of every other year, to keep them to a serviceable size, to effect which it is necessary to pull them to pieces, and I find they do not bloom so freely that year as the following; therefore it is best to do a part one year, and part the next.

J. S.

VEGETABLE FORCING.

BY WILLIAM COLE,

Head Gardener, Ealing Park, Middlesex.



ANY people, more especially young gardeners, are apt to think that the production of a good house of grapes or peaches, or the cultivation of a few good specimen plants, to be the test of a gardener's abilities. I do not agree with this prevalent idea, for however fine any of the above-mentioned productions may be, if the kitchen garden is neglected, matters will not go on smoothly long. I am not going to say anything about the kitchen garden in this communication, but I propose saying a few words about forcing vegetables, with the idea that a few observations on the subject may be useful. The most important subjects for forcing at this season, and through the winter, are French beans, seakale, and rhubarb. Though not coming within the category of vegetables, mushrooms are particularly valuable for the winter, where several dishes from the garden have to be sent to table daily. I shall leave the last three subjects for another occasion, and will confine myself to the first, namely—

FRENCH BEANS. It is not a difficult matter to have this vegetable all the year round, if there is room indoors for growing them, between the beginning of October and the end of May. Where this vegetable is forced extensively, and a constant succession required, a house, or a couple of houses, ought to be devoted exclusively to them. I have grown very good crops in the pine stoves, and early vineries, but I shall not advise my readers to grow them in the vineries, if they are at all anxious about their grapes. The vines, naturally, soon get infested with red spider, if close attention is not paid to keeping them in subjection, and the beans are ten times worse. It is next to an impossibility to keep them free from red spider, and when they are once established, they spread with amazing rapidity over the foliage of the vines. The red spider difficulty is of no consequence in the pinery, for there is no danger of their attacking the pines. I will just say, with reference to growing them in either of the above-mentioned structures, that the beans must be as close to the glass, and have as much exposure to the light, as circumstances will permit.

I have not only to think about making preparations for the winter supply, before the outdoor crops are destroyed by frost, but have to do it. I have three small span-roofed houses in which I grow my beans; by the aid of these I have not much trouble in keeping up a regular supply, which would be impossible were I to mix them up with the vines, and I am too anxious to keep the spider out of the vineries to bring in anything to encourage it. I sowed the first lot out of doors some time towards the end of September, and after they are nicely up, but before frost sets in, they are brought indoors and treated to a little warmth, and a moderate supply of air during the warmest part of the day, proportioning the quantity admitted according to the state of the weather. All the successional crops are sown indoors, and as the same treatment will be required for all,

one set of directions will be sufficient. In the first place, the seed can be sown in the pots in which the plants are to be fruited, or in small pots and then shifted in the large ones, or in a shallow box or seed-pan, and then after they are nicely up, transplanted into the large pots. The first way is the least trouble, but the others are best where the space is limited, as the plants can be grown in less room through the early stages of their existence. Nine-inch pots are the most convenient size, for they afford room for the beans to grow, and at the same time are not too large to handle comfortably. A few large pieces of crocks should be placed in the bottom, over them a layer of leaf-mould or rotten dung, and then filled up with a compost consisting of equal parts turfy loam, leaf-mould, and rotten dung. I generally sow eight seeds in each pot, and thin out the three weakest directly they are large enough to see which are the best. Five plants in each pot are quite sufficient. When sown in five-inch pots, they should be shifted soon after the first pair of rough leaves are developed, and potted rather firmly, and the same stage should be fixed upon for transplanting them from the seed-pan. The seed should not be sown in the pans or boxes too thickly, and if they are filled entirely with leaf-mould, the young plants can be removed with but little trouble, and without their receiving any material check. No matter which way the seed is sown, the pots, etc., should be placed near the glass until after the first pair of rough leaves have made their appearance. To keep them short on their legs, too much water must not be applied at any time, more especially before the pots are full of roots, and after then, there will not be much fear of that being done. On no account must the plants suffer for the want of this element, and after they are in bearing weak manure-water should be used. The syringe should be put into use once or twice a day: in dull weather once will be enough; but in bright and frosty weather, when a large amount of fire-heat has to be used to keep up the temperature, not less than twice will be necessary. The plants must be supported to prevent their falling about, and I find small twiggy sticks, cut like miniature pea-sticks, the most suitable, as they keep them together without crowding. After the whole of the crop is gathered, a little sulphur should be burnt in the house, if it can be done without the fumes getting into those adjoining, to destroy every trace of insect life. It is equally destructive to plant life; therefore, if there is the slightest danger of the fumes reaching any plants in the other houses, by no means use sulphur, but give the house a good fumigating with tobacco smoke. The late crops, which come into bearing through March and April, I plant out in shallow beds on each side of the house, and there can be no mistake but what I get much finer crops than from those grown in pots. The same kind of soil is used for the beds as the pots, and I make the former about a foot in depth. After the beans are done with, the houses are cleared out, and filled with late crops of melons and cucumbers. *Fulmer's Forcing*, *Newington Wonder*, and *Sion House* are three first-rate varieties for forcing, and I must not forget to say that the temperature should be between 70° and 75° through the day, and 65° and 70° during the night.

EXOTIC FERNS FOR THE GREENHOUSE.

BY AN AMATEUR FERN-GROWER.



FULLY believe that there are very few readers of the FLORAL WORLD who have not an affection, more or less ardent, for this beautiful family of plants; and I do not see how any one can help loving the cool refreshing-looking pets, with their lovely masses of greenery. Notwithstanding this universal love which exists for ferns, the knowledge of their culture and management is by no means so extended as it is desirable it should be. Many people fail in growing these plants satisfactorily because they attempt to grow exotics in their greenhouses or conservatories which require a stove temperature, through want of knowledge as to which require heat, and those that will do very well without it, when buying in the plants. So general is this kind of failure, that I have thought a few remarks upon the subject may be useful. I shall just touch upon a few of the principal cultural details, and then pass on to indicating a few species that do well without artificial heat, excepting to protect them from frost. The number to choose from is by no means limited; and, after barring the *Gymnogrammas*, I would undertake to name a hundred equal in beauty to any other hundred that could be selected, but which require a generous warmth to grow them well. I shall not confine myself to any particular number, but instead, simply run through the list of sorts which I have at present growing in my greenhouse, and name a few of those which do well. Those that will appear in this list I will undertake to say will not disappoint, provided they receive proper treatment with respect to water, air, and light, as I have put every one to the test. I grow large collections of both stove and greenhouse ferns, and as fast as I have duplicates of the former I try a plant in the greenhouse. If it succeeds, it remains there; if not, it is consigned to the rubbish heap; for I make a point of never trying choice specimens unless I have other plants of the same kind remaining in the stove. I generally have a few on trial every year, for I am always desirous of adding to my stock for the greenhouse, as it is so delightful to attend to them, and watch every young frond as it makes its appearance, and shift and turn the plants about, to prevent the young fronds getting cramped and spoilt as they develop themselves. One cannot do this comfortably in the stove, and I spend hours amongst my plants, giving them the many little attentions which, insignificant enough in themselves, contribute so much to their general welfare. I don't believe in people saying they are fond of plants, when they begrudge the time it requires to attend to them; it is no wonder many people fail in growing their favourites, when they hurriedly go through them once a day, water all alike, and then, with the exception of a little attention to air-giving, trouble themselves no more about them until the next day. It must not be supposed that I have nothing else to do besides fern growing, for I should fancy that few readers of the FLORAL WORLD lead a more active life than I do.

Commencing with the *Adiantums*, we have the lovely *A. cuneatum*, commonly called the "Maidenhair Fern;" *A. formosum*, a strong grower, with large branching fronds. *A. hispidum* and *A. pedatum* are both handsome, and medium growers; average height about twelve inches. The latter is nearly or quite hardy.

Passing from these, we come upon the *Alsophilas*. The species belonging to this genus are tree ferns, of noble and majestic outlines, suitable for large houses only. I have *A. australis* and *A. excelsa* growing away finely.

A large selection of *Aspleniums* might be made, for they are all beautiful, but I shall content myself with naming the following, which I consider to be the best in my collection:—*A. bulbiferum*, a beautiful dense grower; *A. dimorphum*, *A. monanthemum proliferum*, and *A. præmorsum*.

Athyrium Goringianum tricolor must not be missed, for it is one of the prettiest ferns I have.

The *Cheilanthes* include a few fine subjects, but they are rather difficult to manage until one gets used to them. *C. elegans* and *C. farinosa* are both good, and will well repay a little extra trouble.

Cibotium Barometz is a fine handsome free-growing fern, with immense glossy green fronds.

Distinct from all the foregoing, we have the *Davallias*. *D. bulbata* and *D. Canariensis* ought to be in every collection. I wish my readers could see my plants of them.

The *Dicksonias* are another magnificent genus of tree ferns. All the species are good, whether large or small. When they are about six feet high, with good heads, they give the fernery a grand appearance, and as they overtop the dwarf growers, which I place under the shelter of their large fronds, they do not take up much appreciable room. I grow *Antartica*, which I consider equal in point of beauty to any of them.

From the giants we turn again to the dwarfs, and the first we come to are the *Doodias*. *D. caudata* and *D. rupestris* are both charming little things.

I have a few good specimens of the *Gleichenias*, but as they are rather expensive to buy, I am almost afraid to say anything about them. *G. dichotoma*, *G. hecistophylla*, and *G. speluncea*, are the three best species I have. These ought not to be taken in hand until the first principles of fern-growing are mastered.

We can also find several good things amongst the *Lastreas*, such as *L. elegans*, *L. opaca*, and *L. Standishii*.

The lovely *Leptopteris superba* should be in every collection. It requires to be grown under a glass, slightly elevated, and in a shady corner, and the fronds should be frequently sprinkled.

Litobrochia aurita and *L. vespertilionis* are too coarse for limited collections, but they have the qualification of a free habit, and on that account will be useful to those who cannot well manage the more delicate kinds; I never grow more than one of each. In the spring I turn the plants out of the pots, cut them into several pieces, and then pot a piece of each, and throw the rest away. By shifting them into larger pots, as they may require, through the season, I

manage to keep fresh and vigorous plants, which would not be the case were they left in the same pots year after year; they grow at such a rate, that it is practically impossible to give them a large shift every season.

Reviewing my *Lomarias*, I like none so well as the beautiful *L. Gibba*, which everybody should grow. I find it very useful for the table when flowers are scarce, and grow several in five-inch pots specially for that purpose.

Lygodium scandens is useful on account of its distinct character; it can be either trained to the wall, or to a trellis fixed in the pot.

The bold-looking "Bird's-nest," *Neottopteris nidus*, is a great favourite of mine, and worth any amount of attention; every earnest amateur should have it.

Nephrodium molle corymbiferum ought to be grown in place of the species, now that it can be obtained at the same price. I keep a plant or two of *N. molle* just for the sake of variety.

There are some good things amongst the species of *Nephrolepis*, but I can only get *N. tuberosa* to do any good in the greenhouse.

Onychinum japonicum has beautifully divided and extremely delicate fronds, but it is rather a ragged grower.

The "Elk's Horn," *Platyserium alicorne*, is grand for suspending to the wall, or over doorways.

The beautiful *Polystichum setosum*, introduced a few years back from Japan, though perfectly hardy, should be grown in every collection of greenhouse ferns. I bought a plant when it was first sent out, and it now has a clear stem of quite six inches, forming a beautiful miniature tree fern, and is much admired by all who see it.

This brings us to the great family of *Pteris*; and I class the beautiful *P. argyrea*, with its pure white variegation and free habit, as one of the best I have. *P. cretica albo-lineata* is also good, but for a dwarf grower by all means have the lovely *P. scaberula*, which requires similar treatment to that advised for the *Litobrochias*, to keep it always beautiful and fresh. This charming fern thrives in a fern case so well, that it soon obtains sole possession, and has to be rooted out. Everybody knows the old *P. serrulata*, which is by no means to be despised; and its fine varieties, *cristata* and *polydactylon*, can be fairly classed with the most beautiful ferns in cultivation.

The *Trichomanes* are rather more difficult to grow than most of the sorts I have named above, and are, moreover, expensive to purchase, therefore I shall not say much about them; they are worth all the trouble they require. The best code of treatment I have met with is that given in the "Garden Oracle" of 1866, and my pans of *T. radicans* and *T. reniforme* are admired as much, or more, than anything else.

The last subject that I shall name is the fine old *Woodwardia radicans*, with its magnificent drooping fronds. The pot in which this species is grown should be elevated on a large inverted pot, or block, or be suspended from the roof, to show it off properly.

"Will all these do well grown with my ordinary greenhouse plants?" I fancy I can hear some of my readers inquire; and in answer, I say, "Certainly not;" for scarcely a dozen ferns out of the

whole family will stand the light and air necessary to the well-being of hard-wooded plants, without suffering in some measure therefrom. If ferns are to be grown so that they are a credit to the cultivator, and have that fresh, healthy, green colour which adds so much to our enjoyment of them, they must have a house set apart expressly for their culture. They require a subdued light, and shading from the sun, combined with a cool, moist atmosphere, to bring out their full beauty. How many hundreds of conservatories are there in the neighbourhood of our large towns, more particularly round London, which are built in nooks and corners, where it is impossible to get sufficient light for the growth of the ordinary kinds of plants. How miserable and wretched is it to go into one of these structures, to see a few geraniums, fuchsias, and perhaps an azalea or two, and an old straggling camellia, dragging out a miserable existence, that it would be a mercy to put an end to! These are just the places for ferns; with a good selection, such as I have named above, and less attention than is now paid to the present miserable occupants, they may be made perfect paradises, so far as the beauty of the ferns is concerned. I have made several converts amongst my friends who had houses of this description, and they say they will grow no more flowering plants. I don't go so far as that; for I love flowers quite as well as ferns, though the latter are my especial favourites; but if I am so far successful by these few remarks as to induce any of my readers who have houses of this description, to rid them of the half dead rubbish with which they are now filled, and grow ferns, I shall be more than repaid for my trouble in writing them. I shall not go into a lot of cultural details, but I will just say that I grow nearly the whole of mine in silky loam, full of fibre, and good fibrous peat, in equal parts, with plenty of silver sand, using more sand for the delicate growers than those with a more vigorous habit. I use plenty of drainage in the bottom of the pots, and mix a few small crocks with the compost. With respect to watering, I can only say that the plants must not get dry, or they will lose most of their fronds, if it does not kill them. On the other hand, the soil in the pots must not be kept continually soaked with water, or the plants will be injured that way; everything must be done in moderation. A syringing overhead once a day through the summer will be beneficial in promoting a healthy growth, and keeping the fronds clean. The tables and walls should also be sprinkled, to maintain a moist atmosphere in warm weather, which is better than too much syringing. A moderate degree of attention to their wants, in the way I have pointed out, is all that ferns require; therefore nothing further from me is necessary.

AUTUMNAL FLOWERS.—Everybody knows that Michaelmas Daisies and Chrysanthemums are invaluable for autumn flowers. But there are few who are familiar with *Anemone vitifolia*, "Honorine Jobert," and the older rosy-flowered *A. Japonica*. These, without doubt, are the two finest autumnal flowering plants of the herbaceous garden.

FORCING ASPARAGUS.

BY J. C. CLARKE,

Head Gardener at Cothelston House, Taunton.



FEW families require forced asparagus before Christmas; but as there may be exceptions to this, those who require it earlier must now begin to make preparations for forcing. A bed should be made, chiefly of tree leaves, to fit a frame of about eight feet by six. This will be sufficient for an ordinary family. If the bed is made up four feet high at back and three feet six inches in front, it ought, if properly put together, to furnish enough heat to mature the crop. Those who intend to force early should at once lift the roots, so as to send them to rest early. This applies, of course, to those who expect soon to be engaged in the work; but for ordinary purposes, such as those who want it at Christmas, this is not strictly necessary, although well worthy of adoption when convenient. To assist those who are not well acquainted with the subject, I will add here that, from this time up to the end of the year, it will take six weeks after it is first put into heat to bring it to perfection. In the month of January it will take five weeks; but as the season for its natural start into growth is approached, the cultivator will find that it requires less and less time in forcing it fit for table. It is important that this should be remembered, otherwise we may find that our calculations have not kept pace with the season, so that we should have two crops closely following each other. Most families that we have known are particularly fond of a few early dishes of this useful esculent, but unfortunately they are not aware how weighty a matter it is to the gardener to keep up a supply, and there are but few disposed to purchase roots for the purpose of forcing.

After the bed has been made up a few days, and the frame put upon it, it is much the safest plan to ascertain exactly what bottom-heat there is in the bed. An old practitioner would know this by placing a stick two feet or so in the bed. After it has been there some hours, he would judge to a nicety how matters stood; but for inexperienced hands, I should advise that a thermometer be placed an inch or two under the surface. This will give him the exact temperature of the bed, which must not on any account exceed 60°, though 55° is a safer heat for young hands, for there are more roots of asparagus killed through too much bottom-heat than from any other cause during the season of forcing. If it is found that there is more heat than wanted, stir up the inside of the bed, and then wait a day or two longer till it has cooled down; after which put on two inches of dry soil; upon this place the roots, putting another light covering over the crowns. Generally speaking, the steam and moisture from the bed will be sufficient to damp the soil, but the operator must judge for himself when this element is needed. Later in the season it will

most likely require water; use it tepid, at about 70°, and give a moderate soaking. Give a little air in the day, when it is not actually freezing, increasing the quantity as the grass shows itself above the ground, or it will be found to be deficient in flavour. Besides, it requires air to colour the points of the grass, or they have the appearance of bleached sticks.

I once forced some excellent asparagus in one of those old-fashioned pineries with a pit running through the middle of it. As the pines had been dispensed with, I grew my grass there without any extra preparation, as the heat required for the early pines was sufficient for the asparagus.

In some good old gardens there are to be seen permanent beds made for forcing out of doors. A four and a half inch brick wall is run along each side to form the sides of the bed four feet deep, the two feet from top being built on the pigeon-hole fashion, the vacant space between the beds, to the depth of three feet, being left open to receive fermenting materials, so that when it is desirable to force it, the vacant spaces between have to be filled up with leaves, etc., and the heat penetrates these pigeon-holes to the roots of the asparagus. This plan is certainly an expensive one at the outset, but I question if it is not as economical in the end as any other method known to practical men. Where manure is abundant, as it is in many good establishments near London, the gardener having first pull at the produce of the stables, the pigeon-hole system is invaluable, as the manure can be carried direct from the stables to the trenches, and there undergo the first fermentation, which fits it for other purposes, and turns to profitable account the rank heat which is usually wasted.

PLANTS FOR SMALL TOWN CONSERVATORIES.

BY A LONDON AMATEUR.



HAVING been a reader of the *FLORAL WORLD* for some twelve years, I begin to feel a sort of obligation to contribute something to its pages, for by its help I have learned to grow flowers, fruits, and vegetables. I have taken about one hundred and fifty prizes at exhibitions, and for a long time past my garden, which used to be seriously expensive, now more than pays its own way, for if I value at market rates all I obtain from it, I know I am considerably the gainer. I remember, when our worthy Editor gave his capital series of papers on "Grapes for the Million," he told us how some of the sunny town conservatories, which he described as ovens in summer and refrigerators in winter, answered admirably for grapes, and would even give in good seasons a fine bunch for every square foot of glass-roof. Well, I have seen much of those little glass boxes, which the kind builders stick on the sides of houses, and call "conservatories," and about only one in ten, to my certain knowledge, is ever employed for plant growing, in a way which satisfies their owners. All sorts

of things are put into them and live for a time, but death makes an end of the affair at last, and in some cases the dead plants remain on the shelves for months, to render the dreariness of the so-called "conservatory" the more horrible. We cannot pretend, or at least I shall not pretend in this my first contribution, to cure the apathy of householders who have these conservatories, and never make use of them. That is a moral disease I do not pretend to cure. But I feel certain that in many cases, if people were well advised, and would take good advice, in their management of these places, they would acquire a love for plants and a taste for gardening. There are many kinds of plants adapted for these structures, and there are many more unfit. "If this should meet the eye" of any person who wishes to make the best of one of them, and has not succeeded yet, my first advice is, throw away all calceolarias, heliotropes, petunias, pansies, in fact *all* the popular flowers, including—no, never mind, *not* including geraniums. I know you won't throw away geraniums, else I would ask you to do it; but you may keep a few of them, just because when they flower they are very gay, and they will live through very hard treatment. Well, now you have got rid of the plants you doated on, but which never thrived because they were roasted in summer and frozen in winter—now begin again by obtaining from a respectable nursery, where we will suppose they will let you have the plants you ask for, with legible labels attached, and not impose upon you because you are not a botanist.

Your first selection should be from amongst the cheapest and hardiest of succulent plants, for these will endure starvation, forgetfulness, and extremes of cold and heat. But you are not to neglect them, they are to have water regularly all the summer, and a little now and then in the winter, in fine mild weather; moreover, you are to shake them out of their pots and repot them into larger pots, when they require it, but you are to be careful to put plenty of drainage crocks into the pots when this is done, for to be over-wet at the roots at any time will be seriously injurious to your plants.

While on this part of the subject, I will say a word to those of our friends who do not know how to repot a plant. We will suppose it has grown too large for the pot it is in, and must have more room. Procure an empty pot one size larger than the one the plant is in. Put into the empty pot enough small cinders, pebbles, or broken bricks, so that when the pot containing the plant is dropped into it, the upper rims of the two pots will be level; next fill in between the two pots with any good sandy soil you can obtain, and the job is done. You will not have disturbed the roots at all, yet you have provided more room for them, and they will soon find their way through the pebbles or bricks, and ramify amongst the new soil between the two pots. Suppose a year to have elapsed since this was done, and the space between the two pots is quite full of roots. Find an empty pot just large enough to receive the whole affair, and allow a little space between. Prepare this with a bed of broken bricks or pebbles, drop the two-fold pot and plant into it, and fill in between as before. Thus you may keep the plant always growing vigorously until the whole affair becomes too heavy to allow of any

more enlargement. But by that time you will be so used to succulents that you will know how to cut up the plant and make small ones with which to begin again; and by that time, too (happy thought!) you may have learned how to give away plants as well as how to grow them.

Now for the sorts; and first I propose a little group for beginners.

HOUSELEEKs.—The California, *Sempervivum Californicum*; the tree houseleek, *S. arboreum*; the spider, *S. arachnoideum*; the flat-topped, *S. tabulaforme*.

ECHEVERIAS.—The blunt-leaved, *Echeveria retusa*; the one-sided, *E. secunda*; the glaucous-leaved, *E. glauca*; the chocolate-coloured, *E. caleophana*; and the indescribable *E. Scheeri*.

CRASSULAS.—The sickle-shaped *Crassula falcata*, also called *Rochea falcata*, a magnificent plant, whether in or out of bloom; *Pachyphyton bracteosum*, a most curious plant; with leaves like blue-stained alabaster; the Jasmine-like *Crassula jasminaea*. I know there are many more suitable, but I am not well acquainted with this family, and only name those I have and admire.

STONECROPS.—The finest of all for growing under glass is the lovely autumn-flowering Chinese stonecrop, *Sedum Sieboldii*. It is a huge transition from this to the pretty little *Daviesia polifolia*, but this gem is indispensable.

Supposing that the amateur has acquired a taste for this kind of plants, and had become somewhat accustomed to their management, I should recommend him to add the following:—*Yucca filamentosa* and *Y. recurva*, *Aloe albo-cincta*, *Agave Americana*, *Mammillaria concinna*, *Melocactus amœnus*, *Opuntia Braziliensis*, *O. cochinitifera*, *O. gracilis*, *Echinocactus pulchella*, *Umbilicus chrysanthes*.

There are many other families available, and chief amongst them should be named the *Mesembryanthemum*, many of the species of which are splendid when in flower, and very curious and interesting at other times. Those who want collections should refer to the "Garden Oracle" for 1864. I have only named a few of the very best for beginners.

I had not taken much notice of succulent plants until there was a list of them arranged in order of flowering, published in the "Garden Oracle," just referred to. I then began to buy, and have now a large and valuable collection, which I prize and enjoy. Probably many possessors of small conservatories will recoil from the idea of filling them with such plants as these; but I can only say that if a little patience is bestowed upon them, they are sure to gain upon the affections of their possessor, and afford him endless delight in observing their curious forms and peculiar modes of growth, and, above all, their splendid flowers, which last a long time in perfection.

EARLY-FLOWERING TULIPS.

BY WILLIAM DENN,

Shipley Nursery, Bradford, Yorkshire.



WHEN I think, as I often do, how little is known about early tulips, and their value and beauty for decorative purposes, a feeling of shame comes over me that I have not tried more to bring them into notice. In the first place, they are very cheap, and can be purchased at from 2d. to 6d. a root. Secondly, they can be so easily grown and increased. Simply plant them in November in light sandy soil, and take them up after blooming, and keep them in a dry place until planting time again. The tulip increases readily from small bulbs attached to the old root, and these speedily become blooming roots. Then what lovely colours we have in them, and how soon they bloom, so that in April, when we are glad to see spring flowers, imagine a glorious bed of early tulips, in all their rich and varied colours, not tall, gawky things, but of dwarf, compact growth. The glorious beds of early tulips at South Kensington and the Wellington Road have shown us plainly how easily they can be grown, and I cannot too strongly recommend them to amateur gardeners, both for pot culture and for beds.

The following are a few of the best and least expensive kinds, and the very best for general purposes. A dozen of each would make a fine collection for decorating the conservatory, and to flower them in pots requires, perhaps, little skill, and is one of the least expensive of pleasures. All that is necessary for this purpose is to pot them in 48-size pots, three in a pot, in any good light soil, and keep them in frames or pits, until they are in flower; or, if wanted early, a few should be taken at a time into the greenhouse or forcing pit, to hasten the flowers that are quite hardy. They love water when growing, and they *must* have, from the moment they begin to grow, plenty of light, with air in abundance in mild weather. As there are about two hundred varieties in cultivation, I think the reduction of the list to less than fifty will be of some service to amateurs who wish to spend their money to advantage. But to suit the case of those who would prefer a few of the very best, I have marked such as I consider leading kinds with an asterisk, thus *. To render the shorter selection the more complete, I have added to these their respective heights when in flower:—

EARLY SINGLE TULIPS.

Alba Regalis, creamy white, fine form.

Archduke of Austria, rich dark red, with gold margin, very fine.

Beaute Parfait, white striped with scarlet, dwarf habit, very pretty.

*Brutus, dwarf orange crimson, fine, eight inches.

*Couleur Cardinal, rosy crimson, feathered with fiery red, a distinct and beautiful kind, nine inches.

- *Couleur Ponceau, rosy crimson lake, very fine, eight inches.
Cramoisie Royale, cerise, heavily edged with white.
- *Cramoisie Superb, habit of *Vermilion Brilliant*, but of a softer rosy crimson colour, nine inches.
- *Duchesse de Parma, deep orange red, with yellow border, late, and very fine, nine inches.
General Garibaldi, dwarf, bright scarlet, extra fine.
Globe de Rigaut, white flaked with purple, good stiff habit, fine.
Gold Prince, bright deep yellow, stiff habit.
Grande Blanche, white, fine form, very beautiful.
- *Joost Van Vondel, superb glossy crimson with white stripes, very distinct, handsome and showy, nine inches.
- *Keizer Kroon, bright red, bordered with yellow, large flower, stiff habit, an exceedingly fine showy variety, nine inches.
Lac, deep rosy lilac, with broad margin of white, very dwarf and pretty.
Ma Plus Amiable, darker and dwarfer than *Keizer Kroon*, but marked like it.
- *Monument, bright cerise crimson, extra fine, nine inches.
Paul Marcalese, very distinct rich rosy red, faintly marked with white on the outside of each petal, extra fine.
Paul Potter, rich rosy purple, fine form, and distinct.
Princesse d'Autriche, red and yellow, extra fine.
- *Proserpine, rich rosy pink, very fine form, stiff habit, a beautiful variety, very scarce and dear, nine inches.
Purple Crown, habit of *Vermilion Brilliant*, rich dark purple crimson, extra fine.
- *Queen Victoria, white, delicately feathered with rose, very distinct, eight inches.
Rose Gris de Lin, delicate silky rose, edged with white, extra fine.
- *Rosamundi, a little gem, beautifully formed and dwarf, white, marked with pink, five inches.
Royal Standard, white flaked with rosy crimson, very showy.
- *Samson, rosy red, very fine, seven inches.
- *Thomas Moore, rich brownish orange, fine form, eight inches.
- **Vermilion Brilliant*, most brilliant carmine, a fine and very beautiful variety. The true variety flowers earlier than the general collection, and is not, therefore, well adapted for a group of beds, but it is one of the finest varieties in cultivation for a separate bed, or for pots; six inches.
- *White Pottebakker, a fine variety for pot culture, large pure white, stiff habit very fine, nine inches.

DOUBLE TULIPS.

- Couronne Imperiale, white flaked with crimson, large and fine.
- Crown of Roses, shaded delicate pink, extra fine.
- Duke of York, red, with broad white margin, dwarf and handsome.
- *Gloria Solis, cerise red, edged with yellow, eight inches.
- *Grisdelin, pale lilac purple, with white border, very pretty, eight inches.
- *Imperator Rubrorum, finer than *Rex Rubrorum*, six inches.
La Candeur, white, fine.
- Marriage de ma Fille, yellowish white, striped and flamed with bright rosy carmine, a late and very fine variety.
- Murillo, blush white, marked with pink, distinct and very pretty.
- *Rex Rubrorum, deep crimson, cheap, fine, nine inches.
- *Tournesol, Red, with yellow margin, nine inches.
- *Yellow Tournesol, golden yellow, speckled with deep orange, fine, nine inches.
Yellow Rose, showy yellow.

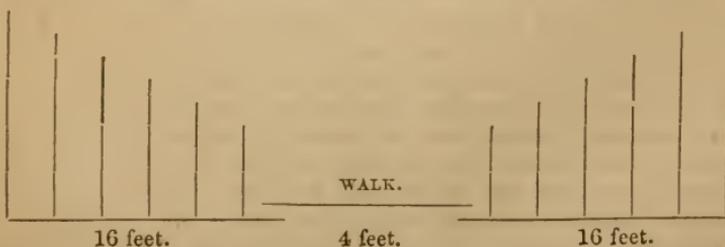
THE AMATEUR'S ROSE GARDEN.



ONE of the first dreams in which an amateur rose-grower indulges is the setting apart of a large space in the garden for a "Rosery" or "Rosarium." The usual fate of the dream is to be forgotten, for as a man acquires experience in the cultivation of the rose, his taste improves, and he discovers that roses are not particularly attractive in the winter time, and that in summer a large extent of ground covered with roses only, is not so splendid an affair as it appeared in the dream. In very large and very grand gardens, a "rosarium" is a proper thing, just as a "pinetum" is a proper thing, and as an "American garden" a proper thing. I thought of that when writing the "Rose Book," and made a design for a grand rosarium the subject of the frontispiece. As it has always been our custom to have a gossip about roses at this time of year, I propose now to consider this grave matter of a rose garden from the amateur point of view, and in the interest of amateurs who are not possessed of boundless wealth and territory. In case any of our rose-loving friends are just now in the first phase of the dream, I consider it my duty to promote its dissolution, by modestly recording my opinion, the result of much observation, that a rosarium is almost of necessity a mistake, and that no genuine lover of roses—and I profess myself to be one—will ever enhance his enjoyment of his favourite flower by setting apart a great space in the garden, and filling that with rose trees. I will cite one example just to the point, and that is the Rosery at the Crystal Palace. The mount and the pavilion are two fine features, and when the broad belt of roses, with which the mount is girded, is in full bloom, the walk round is agreeable. But as soon as the bedding plants on the mount are in perfection, the roses are flowerless, and absolutely in the way. The plain fact of the matter is that roses need relief: a compartment filled with them is a delightful feature of a garden, and they are charming things to be *sprinkled about* amongst evergreens, in mixed borders, and in odd places everywhere; but to cover a great extent of ground with them is to court monotony, and reduce romance to beggary by obliterating its lights and shadows, and its points and contrasts. Roses rising in masses out of grass turf are delightful; roses intermixed in clumps with evergreens have a peculiarly bright and telling appearance. I know a few gardens where roses are grown well, and in considerable numbers, and where they have a tenfold chance when in bloom, and are not unsightly at other times, because they are intermixed with fine hollies, sometimes set out in broad masses, with rich backgrounds and belts of tree and shrub to give relief, and where the most fastidious would not complain of satiety, and the most rapacious rose-devourer would find enough. Give me well-planned walks that wind easily through smooth lawns and amongst bold blocks of trees and evergreens, and I will rejoice if I see roses at every turn, especially if they are grouped so as to bring out their several colours, though it is a fortunate fact that if a clump of

roses consist of various kinds brought together with no nice fore-reckoning as to colours, they never mar each other, because there are no strong contrasts amongst them. The English style of gardening is admirable for the display of this most English flower, because the bold breadths of green required, and the easy transitions from light to shade, from unbroken turf to semi-wilderness, and from formal lines to graceful sweeps, suit the rose at every step. On the terrace, standards are inadmissible; on the lawn they are less inappropriate; but in mixed planting they are the noblest of all the subjects we possess to light up the scene with colour, and delight old and young with their grace and perfume.

When an amateur is bent on forming a rosarium, it is a very easy matter to waste money in producing a complication which shall at last prove unsatisfactory, for roses—even if we select the best for bedding purposes—do not comfortably fit into hearts and diamonds, and scollops and corkscrews, such as we find in gardens under the designation of “geometry.” During the month of June, groups of such a kind may be agreeable, but in August considerably less so, and the true bedding plants will certainly have stronger claims to patronage on artistic grounds, whatever may be the peculiar predilection of the amateur for roses. I cannot imagine a more simple and effective arrangement for a small collection than that which I have adopted myself. On either side of the walk is a broad piece of ground, with tall privet hedges beyond for background. Next the privet is a narrow walk, and on the lines of the walk trellis wires strained to oak posts. Against the trellis are a few climbers, and thence across to the central walk a regular arrangement of standards in lines, with dwarfs next the wall; the whole scheme forming two banks of roses with the walk between. One advantage of such a scheme is that those who like to see a mass of roses in bloom are sure to be gratified. Another advantage of the arrangement is that an inspection of any particular tree may be made without difficulty; in fact, the rose-fancier is sure to take his walks amongst them frequently to criticise and compare, to indulge in occasional raptures, and sometimes—who knows?—to condemn some of them, and determine on exchanging them for better. Another and not the least advantage is that you can call it a rosery without having committed yourself to an arrangement attended with expense, and which cannot be easily altered. The rosery is after all only a couple of broad borders, say 16 feet wide, and as long as may be suitable to the place and the purse of the owner, and the plan of it will be understood by the diagram which the printer has prepared for me.



As at this season many amateurs are buying and planting roses, a few suggestions may not be out of place. Brier roses, or in other words standards, require a good deep moist loam, well manured and industriously broken up previous to planting. A good clay will suit them if there is no stint of labour in deep digging and breaking up, and manure it as you would for cauliflowers. Dwarfs, whether on own roots or Manettis, require a rather light rich loam, but robust habited roses, such as Jules Margottin, General Jacqueminot, and Anna Alexieff, are not particular, provided they can root deep and are well fed. Nevertheless, the best way to prepare the ground, if it is a rather stiff loam, is to dress the front line where the dwarfs are to be planted with plenty of leaf-mould and rotten manure; and if rotted turf can be spared for it, the stuff will not be wasted. But let no one suppose that roses require elaborate preparations; any soil that will grow a good cabbage will grow a good rose, whether it is a cabbage rose or any other kind. In my rosery the General and Jules, and others of like habit, on their own roots, make shoots seven to nine feet long in one season. It happens to be a very fertile soil, is manured on the surface every spring, and every third year all the roses are lifted, and the ground deeply dug and manured.

As to buying roses, an order sent to any of the first-class trade growers, whose names are known well enough, specifying heights and numbers, and leaving the dealer to select the sorts, will be sure to result satisfactory, and the cost of the whole would be about half what would be charged if the sorts and the trees were selected by the purchaser. I made a plantation like my own for a friend last winter, and I went about it in a most off-hand way. I wrote to Messrs. Paul and Son for so many hundred standards, ranging from three to seven feet; and I said nothing about the numbers required of particular heights or sorts. When they came in, I set the men to work in a systematic way. One pruned head and tail, and handed them over; the next placed them in lots as to heights; the next carried them to their places, and laid them in bundles for planting. To have a plantation of roses as true to heights as an architect would require the columns of a portico, is out of the question—it simply cannot be done; but there is no difficulty in arranging them to form a very regular bank, if a fair proportion of each height is supplied in the first instance.

The planting of roses, more especially of standards, should be done with care. Fellows who blunder about, and hack and slash with spade and knife, ought not to be admitted amongst roses. All the long roots must be cut back; all the wounded roots must be shortened so as to remove the injured parts; there must be no tugging and tearing, and care must be taken not to bruise the bark. In cutting back the heads, it must be remembered that the final pruning is to be done after they are replanted; the cutting back before planting is to render them more convenient for handling, for the nurserymen send them in with all their huge whip-like shoots full length; it would not do for them to prune; they would not look worth their money, to say nothing of the time it would consume.

The first proceeding consists in measuring off the ground in lines,

and it is best to begin with the tallest. If these average six feet high, they must be five feet apart in the row, or not more than five-and-twenty in a run of one hundred feet. The next row should be five feet removed from the first, and the trees in it should average four and a-half feet high, and be put four feet asunder. The next row should be four feet from the second, and the trees in it should average three feet high, and be three feet apart in the row. If they are strong-growing sorts, and the soil is good, and the trees have already fine heads, give them a distance of four feet apart, and they will soon touch each other, and make a solid line of leaf and bloom. The front row should be three feet from the last, and the bushes in it two feet apart, and set back two feet from the edge of the walk. The quickest way to plant is to lay down the line, throw out a trench, place the trees, carefully laying out the roots near the surface, throw a little earth over, and tread very lightly, just enough to keep them upright, and so on till the whole are in their places. Then go over them again, tread them firm, and stake them securely, and they may remain for months, if need be, without any further attention. The reason I always plant them loose in the first instance is this, that when the whole piece is planted, I am sure to want to move a few, and make a few exchanges. I can, therefore, take out any of them by a mere touch, rearrange as needful, and there is no waste of labour. Besides, this sort of work should be done quickly, for we do not get much fine weather at the time for planting roses, and it does them much mischief to lay about: the sooner their roots are covered the better. By the system of merely placing them with a shovelful of stuff over the roots, the whole lot can be got into their places quickly, and come rain, frost, snow, or what else, they cannot suffer: they are safe, and if not finished for a week or two no harm can arise. But I do not counsel delay; the true rosarian will never shilly-shally when planting is the order of the day. The sooner the whole job is finished the better, but if every individual tree is finished right out at once some may suffer through laying about with perhaps their roots not half covered, and at the best it is certain that a few will have to be lifted to get them all into perfect order.

In the "Rose Book" I have advocated the use of iron stakes for rose-trees. Some growers contend that iron stakes do harm, and they go on using oak stakes instead. Observation and experience have convinced me that iron stakes do no harm, and that oak stakes, and in fact any kind of timber supports, are really injurious, and many a rose tree is killed by the spread of fungus over its roots through contact with decaying wood. Ten years ago I bought a lot of iron stakes for our standard roses, and they have been constantly in use ever since, and are now as good as new. Once in three years we boil up a cauldron of tar and pitch, thrust the ends of the stakes into the fire that boils the pot, and when the ends are rather hot dip them into the mixture. Two coats of paint on the length of the rod finishes them; they can be placed close to the stems of the trees, care being taken in thrusting them down not to drive them through the thick roots near the collar, and when the trees are tied up the stakes are almost invisible.

For the full enjoyment of a plantation of roses, it is of the utmost importance to have them legibly and correctly labelled. If the calico labels the nurserymen put on are allowed to flutter in the wind all winter, the chances are that the writing will be washed out before spring. Therefore, to complete the labelling quickly is a matter of considerable importance. There are a thousand ways of forming and attaching labels to trees. The cheapest are wooden labels smeared with white lead, and written on with a pencil while the paint is soft. Attach these with a copper wire, and take care not to cut the bark of the tree, and leave the wire loose enough for the tree to swell. Once a year look at every label, and keep a list of all the sorts, in which you may make notes of their characters and behaviour. A capital label for rose trees is that made of terracotta by Messrs. Maw and Co., Benthall Works, Broseley, Salop.

S. H.

FRENCH ROSES AND RAISERS FOR 1868-9.

BY W. D. PRIOR, ESQ., CLAPTON.



HOWEVER much the caprices and tyrannies of fashion may influence the taste for other flowers, it does not appear to affect the popularity of the rose. Shows are better attended, and apparently with greater interest, every year, and every year more plants are sent out from the principal nurseries, and fresh varieties imported, regardless of expense and risk of failure, to satisfy the ever-craving desire of the rose-growing community for originality and improvement. The number of foreign raisers (chiefly French) now engaged in purveying novelties, may be reckoned at about a score; all, however, are not equally successful, nor are their productions equally entitled to the confidence of speculative experimentalists. Some rarely send out an inferior rose; others, again, have never originated anything of really first-rate merit. Amongst the former, the names most entitled to distinction are those of Lacharme, raiser of some of the best kinds that boast of Gallic origin, of which Charles Lefebvre and Madame Victor Verdier are enough to immortalize any rosarian's name. We must, however, deal with our French purveyors in the order in which their catalogues come to hand. Beginning, therefore, with Margottin, originator of that still unconquered and indispensable rose, Jules Margottin, we find him displaying four candidates for our favour this year, all hybrid perpetuals. They are as follows:

Adolphe Brongniart.—Very vigorous; footstalks upright; flower large, full, of most perfect form, slightly incurved; petals of large circumference, well rounded, lightly turned, of a fine bright carmine red, and very fragrant.

Adrien de Montebello.—Moderately vigorous; footstalks upright; flower large, full, flattish, of a fine, fresh, satiny rose; very free-flowering.

Leopold II.—Vigorous; footstalks upright and strong; flower very large, cupped; petals of large circumference, stout, and well rounded—those in the centre short, and covering each other; fine rosy salmon. This variety carried off the first prize (gold medal) at the Exhibition of the Imperial Society of Horticulture, at Paris, last June.

Souvenir de Monsieur Poiteau.—Vigorous; footstalks strong and erect; flower large, full, well-formed, cupped very regularly from the commencement of blooming; petals strong, well rounded; fine bright salmon rose, colour less common than its kind. First prize Universal Exhibition, 1867. A variety the most vigorous in its class.

Guillot Père, another first-rate raiser, sends out but one new rose, a hybrid perpetual, this season.

Victor le Bihan.—Very vigorous, upright branches, fine foliage, strong footstalks; flowers very large, very full, opening well; fine bright rosy carmine, magnificent colour. M. Guillot further states that the variety has excited the admiration of all who have visited his establishment, and as he has hitherto proved trustworthy, his description deserves belief.

Guillot Fils, or junior, holds a high rank among reliable raisers of novel roses, especially in the favourite class of teas, three of which are his contribution for this year—as hereafter named.

Madame Celina Noirey.—Very vigorous; flowers very large, very full, opening well; fine habit; reverse of petals purple red, interior delicate shaded rose. A very fine variety.

Madame Adrienne Christophe.—Very vigorous; flowers large or medium, full; coppery-yellow apricot, strongly shaded rosy peach; sometimes fine deep yellow. From this variation of colour, the variety produces a magnificent effect. [We do not agree with this, M. Guillot; such a style of colouring is against the “properties.”]

Mademoiselle Marie Sisley.—Vigorous; large or medium; very full, globular, good habit; deep yellowish white, deeply bordered with bright rose. Superb.

NOISETTE.

Margarita.—Vigorous upright stems; flowers medium, very full and well formed, good carriage, deep brilliant yellow, quite a new tint, heavily bordered with pure white shading to rose, and producing a magnificent effect. Superb variety.

HYBRID PERPETUAL.

Madame Jacquier.—Vigorous; flowers very large, very full and well-made, form and style of *La Reine*; fine bishop's purple. Very fine.

We have next Liabaud, a good raiser, with four hybrid perpetuals, following in order, viz. :—

Marguerite de Mortemart.—Very vigorous; branches very upright; spines clear red, numerous; leaves very large, deep green, very close together, continuing till hard frosts; flower very large, full fine satin white, flesh centre; cupped. M. Liabaud further says,

“We can only compare this, as to shading, with *Souvenir de la Malmaison*, which it surpasses in freshness of tints and texture.” [It must be a beauty!] “This rose is the finest known. It has the character of *Jules Margottin*, from which it appears to be a seedling. It is freely perpetual, and goes far to fill a vacancy for a long time existing in this class.”

Julie Trejve.—Vigorous; stiff branches, forming a fine thick head; small, numerous spines, amaranth red; fine deep green foliage; flowers large or medium, white reflexed rosy lilac, globular, freely perpetual.

Madame Farfouillon.—Very vigorous; upright branches, violet red; spines small and closed; foliage light glaucous green; habit very elegant; flowers very large, half full, fine satin rose mingled with orange. From *Mere de St. Louis*, but differing in colour and habit, which is more graceful. Free-flowering. [N.B. Have nothing to do with it! *Half-full* roses will not do for England.]

Notaire Bonnefond.—Very vigorous; strong branches, running habit, strong and numerous spines, deep green foliage; flowers very large, red velvety purple; free-flowering. Seedling from *Jacqueminot*, but more vigorous and more continuous in bloom.

Lévêque and Son, who hold a highly respectable position for meritorious progeny, have two hybrid perpetuals for issue:—

Emilie Hausburg.—Very vigorous; flowers large, full, imbricated; perfect form, fine colour, delicate, satiny, and glossy rose; the edge of petals lined with white. A very fine variety.

Deviennes Lorny.—Very vigorous, large, full, slightly incurved; very well shaped; fine carmine red. A sort of extra merit.

Jacques Vignerot has two hybrid perpetuals:—

Le Commandant Mansay.—Vigorous; green wood changing to yellow when the leaves are dropped; spines chestnut hue, and numerous; flowers full, nearly five inches across, bright red scarlet; well-formed, good habit. Plant admirable.

Marcel Grammont.—Very vigorous; wood and foliage fine green; chestnut spines; flowers full, about four and a half inches in diameter, fine deep reddish brown; globular, good carriage. Magnificent sort; very free-flowering; seedling from *Comte Montalivet*.

PLANTING TREES IN THE STREETS OF CITIES.



HE planting of trees in the streets of cities has received attention as a seasonable subject in the public prints of late, and has been rather warmly discussed by “philo-” and “miso-” dendrous. The case may be compassed in a nutshell, though, to the municipal mind, it appears to be a very hard nut to crack. It is quite certain that architecture is improved by the association with it of suitable trees suitably placed. A palace or a temple might be spoiled in appearance if buried amongst trees, but when seen bald and bare against the sky, fine buildings have a very poor aspect as compared with similar structures in the immediate vicinity of which bold masses of tree-leafage are associated as accessories of the scene. It is also certain that common roads, equally with select promenades, are, *ceteris paribus*, more agreeable, more imposing and impressive, are more healthy, because trees check the diffusion of smoke and dust, than the same roads and promenades would be if treeless. Again, it may be said

with certainty, that trees of fine character, both as to growth and leafage, capable of withstanding without hurt the influence of smoke and dust above, and excessive drainage below, which, generally speaking, render tree-life impossible in cities, are obtainable from amongst the number of trees commonly planted in parks and gardens. We need not wait, therefore, for the discovery of trees suitable for planting in cities, if the planting of trees in cities is a matter about which we are practically anxious. Some other agreeable and encouraging certainties may be discovered, but we pass them by, in order to notice two that are disagreeable and discouraging. It is an unpleasant certainty that the municipal mind, if there be such a mind, or the municipal wisdom, if there be any wisdom in municipalities, is in the main dead set against city trees. May we take the liberty of saying that all town councillors, vestrymen, churchwardens, and other local governors, are a desperately dead set when they deadly set (as they do) their faces against trees as proper and necessary embellishments of architecture, and extremely proper and necessary (and natural) filterers of the atmosphere in places where smoke and dust prevail? Well, without waiting for permission, we feel compelled to say that local self-government has not succeeded in securing in its behalf the sort of talent it requires. Perhaps, as talent, generally speaking, cannot, any more than coals, calico, and candles, be obtained without pay, the main mistake of the existing system is that local governors are unpaid, and so place and power are only sought as the means of securing influence which may be indirectly rendered profitable. But let us name the second unpleasant certainty, rather than indulge in speculations. It is just this—that many pretenders to a knowledge of the subject have brought it into disrepute. Local authorities, wishing to encourage the *rus in urbe*, have called in a nurseryman or landscape gardener, supposing, of course, that such a person would know all about it; and to him has been entrusted the business of selecting and planting a plot of ground which he was no more qualified to touch for horticultural purposes than might be, and probably would be, the man in the moon. It is quite natural that the municipal mind, being under a permanent cloud, with little learning and less judgment to guide it, should suppose the man who writes over his door “nurseryman and florist” must know all about this subject. The mistakes that have been made—and paid for—in the City of London alone, should suffice to prove that the municipal mind in this particular is liable to error. There are persons who have studied this subject in all its bearings for years, and who would plant the streets of cities with trees that would live and thrive, in spite of smoke, and dust, and drainage; but, as the municipal mind is dark, we must expect it to be the victim of delusions; and, so long as the institutions of local government continue as they are, experiments in city gardening will be few and unsatisfactory, and the dread of falling leaves and drops of water will suffice to keep in their present treeless state the widest roads and finest open places in all our great towns and cities. A paid representation is the first necessity in the reform of local institutions.—*The Gardener's Magazine*.

PUNCH AND SUNSET.



OW short, and thick, and stumpy, you are I declare: look at me, how tall and graceful I am!” said a Scarlet Geranium to its neighbour, a new comer, as they stood in the sunshine of a conservatory one fine May morning.

“Don't you like me?” said the stranger, a slight change spreading over its beautifully-coloured leaves, for it had been a great favourite where it had come from, and was not accustomed to be so plainly spoken to.

“No, indeed, I do not; why, you are broader than long, and you colour up so, if a few drops of water fall upon you.”

“That is my gratitude; I do that to say Thank you, for I dearly love water; but you, why, what long leggy branches you have, and such poor puny dun leaves, not half enough to keep you warm. I wish they had not placed me near you, for I do not like your appearance. I feel ashamed of your condition; I suppose you are too; that is the reason your flowers are so vivid. Why, they even throw a glow upon your leaves.”

“That deep colour in my flowers is my beauty. I am proud of it; it is the very thing for which I am prized. I have heard many a one say that of all flowers, they loved me best. But you, why you have no flowers!”

"I have no little red petals to be continually dropping about and making disorder; but my leaves contain such a blending of brilliant colours, that I am always in bloom, and any flowers, however rich and gorgeous, would only spoil me; and as for love, I never heard mention of you in a bride's bouquet, and I am often chosen for a border for the white flowers to rest upon. And I know you are never taken to a wedding, if anything better can be had; everybody does not admire vulgar red."

"I am not vulgar; you find me in every conservatory, and every garden, with any pretension to taste; and there is nothing to surpass my great round, long-enduring scarlet heads, towering over my dark green horse-shoe leaves."

"You only look, at best, like a slow-burning fire, reminding people of heat when they wish to be cool. If you could come out in that style at Christmas, why, then I would yield the palm to you. I have seen many a fair one turn away with aching eyes from such as you, and rest them long and tenderly on me, short, and thick, and stumpy as you deem me."

"That is all because you are newer, just in the fashion; not that there is much merit in you. Why, half the people looking at you would never see your fine blendings, unless they wore spectacles, or carried an opera-glass; and out in the borders you are not worth much, unless it rains every day, or a gardener stands over you with his watering-can. Wait until you have passed through as many and various seasons as I have, and then what will you be worth?"

"Just as much as now, perhaps more, for I make slow but sure growth. I wonder what you are worth during wet cold seasons, when all you do is to put forth big melancholy green leaves on thick succulent, and, for propagating purposes, useless branches. And then, what an ugly name you have—Punch. Why, one cannot hear it without thinking of barking, and biting, and discordant noises."

"You are very much mistaken; I am named after 'Punch, the London Charivari,' the piquant, the graceful, the vivacious."

"Ah! well, not very much different. He, too, can make a noise in the world, and can rap hard where he knows it will hurt. Look at my name, how true it is to me, and how pleasant—Sunset."

"I see no connecting link between you and your name—not the least."

"I suppose, then, you never look out of the west window, when day is changing into night, and the sky is full of beautiful colours, all bars and streaks, too bright to gaze upon long."

"Ah! yes, I know the sort of skies you mean; just such nights as I have heard say herald in wind and storms."

But the geraniums' disputations were put an end to by the entrance of a gardener, on the look-out for plants that could be spared, to fill up vacant places out of doors. "Here's a splendid Sunset here, just the very thing;" and, without a note of warning, he took it up and carried it out. Poor Sunset drooped a little in sorrow at the parting, for it was fond of the gay company of fuchsias and pelargoniums with which it lived, and had not thought its turn would ever come to rough it in the outer world. Punch looked on, and smiled a rather scornful good-bye, and wondered when they should meet again. Meantime, Sunset found the border soil moist and cool, the air refreshing, with a sweet perfume of roses and stocks in it; nor was it left alone, or unadmired; gentle children came every day to look at the new plant, and called it the dearest little thing they had ever possessed. So Sunset took heart again, and strove to make the best of its altered circumstances, thrust its roots deeper down into the soil, and spread out larger and more brightly-coloured leaves.

"Dear me! how do you feel now, these dull October days?" said an old Scarlet Geranium to a fine richly-veined Zonale a gardener had hastily potted, and placed in the conservatory for shelter from the keen frosty air?"

"Well, and strong, and brown enough, I can assure you, yet glad to be indoors again, for the nights are growing cold," replied Sunset. "But how you are altered; how short, and thick, and stumpy you are, much broader than tall."

"You see young Punches are scarce, so they cut me up into pieces to make more. For a long time I thought it was over with me; they left me bleeding in the hot sunshine, without even a drop of water. After a time I felt better, and took to growing; so if no longer ornamental, I am useful."

"And," replied Sunset, grown wise by companionship with its superiors, "I have heard say, that it is better to be a useful little thing than a useless big thing. And it may be, that there is a corner in the world for us all, into which we can fit better than anybody else."

CLAUDE.

PREPARING FOR WINTER.

A WORD TO AMATEURS.



THE extraordinary character of the present season will tempt many cultivators to do unwise things, and probably some of our friends may suffer hereafter through not exercising caution and vigilance now. It is quite time that the garden work was arranged and disposed with an immediate view to the possibility and probability of an arctic winter following upon the tropical summer which appears to be scarcely yet at an end. Of course we know not what sort of a winter we shall have; we only know this, that prudent men will, as far as they can, prepare against the worst: they always do so, and they will make no exception in this curious season of 1868. Many of our best practicals keep vast quantity of plants with scarcely any trouble, and almost no suitable appliances. Of course there are many places where the plants are as well provided for as racehorses, and almost every specimen can have, if it needs it, a man to sit up with it every night. But such places are few in number compared with those where every square of glass has to do about three times as much work as, on a fair consideration of the case, appears to be possible. To attempt to teach gardeners anything under this head would be as foolish as to attempt to teach a duck how to swim; but there may be no harm in offering a few words of advice to amateur readers on the matters that need attention now with reference to the winter that is near at hand, for it is the winter work that mars many an amateur's peace, and the losses occasioned by frost and damp sometimes tempt them to say they will give up gardening. Not that it matters much if they do say so; they are sure to repent when spring comes; the first bunch of spring flowers that meets the eye changes the mind, and away they go again into the thick of the horticultural frenzy, conscious of certain misery if they adhere to the unwise resolve they made in such haste when the gloom of winter filled them with sadness.

There ought to be no need to advise all who have glass of any kind to see that it is at once put into proper repair, and made ready for use. Broken squares, defective flues, insufficient boilers, leaky pipes, and dirty stages have, of course, long ago called loudly on their possessor to be set to rights; and he, knowing that the first frost usually occurs in the third week in October, and is then sometimes severe enough to spoil the chrysanthemums, has of course attended to every detail of that sort, so as to be ready for winter whenever it may begin. Well, if these things are still unattended to, there is time to make all right, but there is not an hour to spare. Not that we expect an early winter; in plain truth, we expect a late one and a mild one, but our expectations may be like those of Birdofreedom Sawin when he enlisted for the Mexican war—doomed to be inversely realized. Still the probabilities are all in favour of a late winter and a mild one, for a comparison of the records of past years will show that wet summers are usually followed by early and severe winters, and dry summers by late and mild ones. But some sort of winter will come, and growers of plants must in some way be ready for it. The first thing is to have all broken glass repaired, all flues cleaned, all fire-bars and dampers and other parts of heating apparatus in perfect repair. When all repairs are done, have all the glass cleaned *inside*. The importance of clean glass is not half appreciated, yet it is of very great importance during the dark December days to have as much light as possible, besides the fact that clean glass dries quicker than that which is dirty; and when very dirty, the remains of spiders' webs, bits of dead leaf, etc., etc., adhering to the glass, increase the amount of drip, and so add to the difficulties of keeping the plants in health.

Pits and frames need similar attentions, and it is a matter of no small importance to see that there is ready escape for water from all these secured, for if pits are not dry they cannot be good keeping-places; all will go well, perhaps, till the beginning of February, and then damp will triumph, and the inmates will perish wholesale. Those who have a lot of spare lights may extemporize pits now with very little trouble. Select a dry spot, measure off the ground to suit the lights, build walls of turf, peat, or even clay two feet or more thick and two feet high; smooth off the upper surfaces, and on those lay some half-inch planking cut to suitable lengths; insert a few pegs to guide the lights, and your pits are ready. In my travels about I often see col-

lections of plants worth (say) £50 kept in pits made with turf walls and strips of deal for plates, and for lights old window frames. The proper thing is of course the best in the end, but people with short purses cannot have all they want, and extemporized pits ought never to be treated with contempt. One thing we may be sure of is that a makeshift contrivance demands skill to manage it; so those who do well therewith must have the praise that is their due.

A very important matter in reference to the approaching winter is to get the plants into a fit state to endure low degrees of temperature without harm. If left out in the ground until they are absolutely in danger of being destroyed by frost, is really to prepare them for destruction under glass ultimately. The late warm rains will have started into new growth such things as geraniums, verbenas, etc., left in the borders, and the longer they are left out the more gross and sappy will they get, and the more difficult will it be to carry them through the winter. What few plants are potted up for the winter here were commenced with while this sheet was in the press. Such mild weather as the present, with much atmospheric moisture, will, after the check they sustain by the lifting process, help them to fill their pots with roots, and when taken indoors for the winter a few degrees of frost will not harm them; in fact, their condition through such treatment is eminently favourable to their preservation without the aid of fire-heat till quite the turn of the new year. Supposing any of these to be saved to cut from in spring, their dormant condition during the dull months would be all in favour of their making a nice free growth when put into heat in February; whereas if much used to fire-heat before the new year, suitable stuff for cuttings would be more hard to get from them.

Still more important is it to have all plants potted up for winter, in pots well drained, and in a free, open, gritty compost. It is astonishing to note the difference that is observable in the behaviour of plants in sweet soil that allows of quick escape for water, and others in sour, pasty, damp stuff, on the surface of which there is spread a coat of black coniferæ, with patches of liverworts. Carelessness in making composts may be unattended with serious consequences in summer time, but when autumn arrives, and the stuff for plants to winter in is in preparation, there must be a plentiful use of grit, or the labour is in great part thrown away. It is here that thousands of amateurs make a fatal slip. They persist in supposing that this or that will do; they make pasty mixtures; they content themselves with the common soil of the place, without any mixing at all; they crock the pots carelessly; they sedulously lay the foundation for damp and mildew in the pots, and the consequence is that about the 1st of February the top shoots of their plants turn black and rot; about the 1st of March, many plants that have looked well till then suddenly acquire a yellow hue, and look as if suddenly blighted. When examined, they are found to be rotted through at the collar, a process which has been going on slowly and surely ever since the day they were potted the previous October, and so labour, glass, and fuel have all been wasted on them, for rottenness at the collar is an incurable disease. When scarce plants go off in this way, it is possible oftentimes to recover them by the simple process of making cuttings of the freshest of the living shoots—throwing away, of course, the roots and the rotten stem. Geraniums “on the go” may often be saved—that is the varieties—by this process, for they are often quite healthy in the top shoots when quite dead and black at the collar, and if the cuttings are put on bottom-heat, they will soon root and make plants.

I hope I may be excused making a remark upon the predilections of amateurs for things of no value. It is not often that I indulge in oburgations against the tastes and likings of people; and if I do so now, it is with a good object, even if I overpass the limits of fair license. I bethink me of the vast quantities of Verbenas, Petunias, Tropæolums, and other such things that occupy greenhouse shelves all winter to the displacement of Camellias, Acacias, Chorozemas, Salvias, Tree Carnations, Habrothamnus, Epacris, exotic ferns, and other first-class plants which require little else beyond protecting from frost, and which are so much more worthy of manual skill and watchful care, and glass and fuel. A selection of Geraniums ought to be found in every garden, and the most valued kinds must be allowed to acquire age to show their qualities; but many other subjects that are useful in summer only, and that can be bought by the hundred for a mere trifle, cannot be so well adapted to repay an amateur for his care of a stock all winter as a few of those more noble subjects which at all seasons are beautiful, and which in the spring months are especially valuable for their glorious flowers.

THE COLD PIT, ITS CONSTRUCTION AND MANAGEMENT.



FROM the professional gardener, who has to care for the numerous inmates of, and provide the necessaries for a large floral establishment, to the amateur with a square rod of flower garden, each and all are vitally interested in the well-being of the inmates of the cold pit; and however simple the construction and management of such a structure may appear, every gardener can testify that the most assiduous attention does not always meet with the success which might be expected—weeks of close wet weather, or a period of severe frost, alike preventing the removal of the lights, spreading devastation among the inmates by the action of accumulated moisture. Where one plant in this structure is damaged or lost by frost (leaving sheer neglect out of the question), a dozen fall a prey to damp.

Although so much depends upon the health of the “bedding-out” stock for the ensuing season, a gardener is almost wholly thrown upon his own resources for their successful preservation through the winter. And sad are the shifts he is sometimes put to. A range of melon pits is about the only structure which falls to his hand in which to stow away loads of young stock; or, failing these, a few crazy old frames, or the forlorn hope—a “turf pit.” As regards the last, I am sure every gardener will join with me in responding, “Good sirs, deliver us.” But as it is not likely any better receptacles will fall to our lot, we must make necessity a virtue, and do the best we can with what we have. If Robinson Crusoe had not been content with a huge mussel-shell for a spade, a beautiful avenue of trees would never have graced his primitive habitation.

Supposing, then, a range of pigeon-holed pits is to be employed for wintering half-hardy plants, I shall endeavour to point out how to apply them to the best advantage. As a preparatory step, let every particle of mould or decaying vegetable matter be removed from within the pit, and from the lining recesses, if the pits are partially below the ground level; and let the walls be clean and as dry as possible before the plants are put in. A coating of whitewash in the interior would be an acquisition. Next construct a stage of openwork on which to stand the pots, as near the glass as the height of the plants or other circumstances will allow.

It is presumed that every plant will be thoroughly clear of decaying leaves, and the surface of the mould and pots free from lichen or moss. Everything being in readiness, on a fine day introduce your stock, and in proportion as you exclude damp, so will you prevent the action of frost. I have said place your plants upon an openwork stage. By such it will be evident that the atmosphere will have free ingress through the “pigeon-holes” to circulate without interruption between the plants to the upper portion of the pits. I am aware that many whose opinions are worthy of attention recommend plunging plants in cold pits; but from careful observation I conceive such to be a questionable practice; and were we to enter into the philosophy of the matter, I conceive it would be demonstrated as such. Of course in frosty or damp and foggy weather, both the lights and the pigeon-holes will be closed; and circumstances may render it necessary that the latter may remain so for weeks. Therefore, after the weather is such as to render protection necessary, let the lining recesses be filled with long dry litter, such as can be easily removed; and when even the external atmosphere is of a nature to admit of the proceeding, remove the litter from at least half the depth of the pigeon-holes, and tilt up or wholly take off the lights. A current of dry air will pour in, dampness will be absorbed and carried off, and the place endowed with a tenfold capability of resisting frost, when compared with others not similarly situated. Recollect, the unripened shoots of a plant absorb moisture rapidly, and from their healthy action should lose much by respiration and simple evaporation. In the confined atmosphere of a pit, these functions are rarely capable of being satisfactorily carried on. The result is decomposition of the tissues of the young shoots; and the moment such takes place the parts are attacked by minute parasitical fungi, which are contagious, and rapidly spread to other favourable situations for their development. From this we infer that every effort to render the atmosphere of the cold pit dry, or at least circulate it, should be attempted. A damp circulating atmosphere would not be attended with half the disastrous consequences of a stagnant one.

NEW PLANTS.

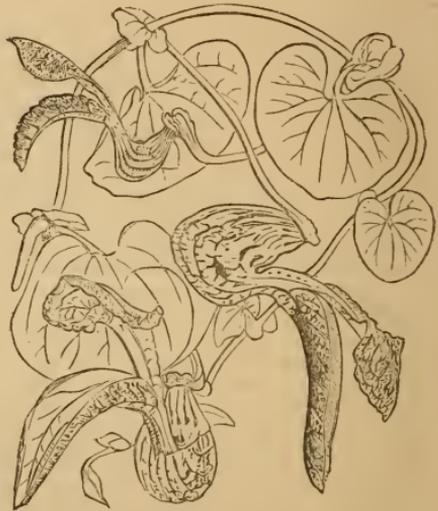


RYTHRONIUM GIGANTEUM, *Gigantic Dog's-tooth Violet* (*Bot. Mag.*, t. 5714).—Liliaceæ. The handsomest of its race hitherto introduced to this country. It is a native of North America. It is a tall herb, the leaves dark green, blotched with dark brown, flowers in a scape of two to four, white with gold yellow centre.

ARISTOLOCHIA RINGENS, *Gaping-flowered Birthwort* (*Bot. Mag.*, t. 5700).—Aristolochiææ. A magnificent stove climber, from the plains of Santa Cruz, in New



RYTHRONIUM GIGANTEUM.



ARISTOLOCHIA RINGENS.

Granada, where its roots are esteemed as an antidote for snake bites. It is a tall, slender, perfectly glabrous plant, with orbicular-reniform leaves of a pale green colour, and flowers from seven to ten inches long, pale green, marked and reticulated with dark black purple. The perianth is a ventricose sac, two and a-half inches long, woolly inside; the tube is divided into two very long lips, one of which terminates in an ovate or reniform blade.

COCHLIOSTEMA JACOBIANUM, *General Jacobi's Cochliostema* (*Bot. Mag.*, t. 5705).—Commelyneæ. A magnificent epiphyte, "combining the foliage of a gigantic Anthurium, with masses of inflorescence which, for size, delicacy, and beauty of tints, cannot well be surpassed." The leaves are three to four feet long, four to six inches broad, deep green, edged with brown. The peduncles are as thick as the finger, white, tinged with pink, bearing an immense panicle of flowers, which are delicately tinted with pink and purple colours. The plant is a native of Ecuador.

LYCASTE BARRINGTONIÆ VAR. GRANDIFLORA (*Bot. Mag.*, t. 5706).—A fine variety of an old and favourite orchid.

BEGONIA FALCIFOLIA, *Sickle-leaved Begonia* (*Bot. Mag.*, t. 5707).—Begoniaceæ. A lovely species, native of Peru. The leaves are falcate-lanceolate, unequally lobed; the flowers in panicles, of a rosy pink colour.

ONCIDIUM CUCULLATUM VAR. NUBIGENUM, *Alpine Oncidium* (*Bot. Mag.*, t. 5708).—Orchideæ. An extremely pretty orchid, from Ecuador, where it grows at an altitude of 11,000 to 13,000 feet. The leaves are solitary, the racemes simple and many-flowered; the flowers purple, with large white lip.

GARDEN GUIDE FOR NOVEMBER.

It is an interesting fact, that after a season hotter than was ever known before, and amounting in length of continuance to the equal of at least two ordinary summers, the late autumnal flowers are only a few days or a week at most in advance of their ordinary season of flowering. Here is now created for us a fresh interest in those well known lines—"Say what impels," etc., etc.; for it is quite hidden from us why one flower should expand in spring, another in summer, and another in autumn, though from the same sunshine they all derive their life and beauty. The autumnal weather, so far, has been all we could desire, and the prudent gardener is making the best of it. Trees and shrubs should be planted with all haste possible, for the ground is warm and moist, and they will make fresh roots immediately. We look for a mild winter, and another long hot season, but the coming winter may be severe, and we must be prepared for anything. Herbaceous plants may still be planted, and so may hardy bulbs of all kinds, but no time should be lost, for if they do not make roots before hard frost occurs, they will not thrive as they should. Winter-flowering plants should have careful treatment, more especially as to light; such things as cinerarias, primulas, cyclamens, etc., should be kept as near the glass as possible. This is a good time to lay a thick coat of manure over grass plots, to kill daisies and thicken the turf. Lawson's phosphoguanos is one of the best manures for grass lawns. It is also a good time to lay down turf, and to make box-edgings.

TO CORRESPONDENTS.

GRAPES NOT SETTING.—*D. B. Beverley*.—Both the grapes you name are shy setters, and we should be inclined to advise you to take up a rod from one of the other vines, and remove them as soon as the young rods are strong enough to take their place. There is nothing that can be done beyond the treatment you now give the whole of the other vines. It is a very good plan to fan the bunches with an ordinary fan, or piece of cardboard, two or three times a day during the time they are in bloom. We once tried it on some muscats, that never had previously set a decent bunch, with the best results.

GROWING VINES IN GREENHOUSE.—*An Amateur*.—Good crops of grapes may be grown in pots in your greenhouse, and you would stand a better chance of a good crop than you would were you to force them. Though you would stand a reasonable chance of getting a good crop in pots, it is by no means the best way. We should advise you to make a border outside the house at once, and turn your vines into it, and bring the rods through the wall just under the surface of the soil, if you conveniently can; it is much better than having the stem outside the house for several feet in length. Make the border about three feet deep, ten feet wide, and the length of your house. Place about a foot of rough pieces of brick in the bottom for drainage, and then fill up with a compost of three parts loam and one part each of rotten dung and lime-rubbish. Vines planted out in a border of this description will grow away with but little trouble and attention beyond the pruning and training required overhead. You had better cut the vines back to about a foot from the point of their entering the house. In two or three years you will have an abundance of grapes; but if you keep them in pots, you will have a few next summer, and then the vines will be of no further use. To keep a stock of fruiting vines you must propagate a fresh lot every year. It requires considerable experience to grow vines in pots as they should be, therefore it is scarcely likely that amateurs who have but a limited knowledge of the subject will do much good.

TAKING UP CHRYSANTHEMUMS.—*Mrs. B.*—We should not recommend you to take up the very large plants which have been growing in the same position for several years. The flowers would be all right, but the plants would probably lose all the foliage, and be only suitable for placing in the centre and at the back of other groups. With a little care you might take up the plants which were turned out in the spring without their receiving any appreciable effect; take them up without knocking much of the soil from the roots, and after they are potted, give the roots a thorough good soaking of water, and keep them rather close for a week or so.

TREATMENT OF CALCEOLARIAS.—*M. H. G.*—You are fortunate in having such nice round-headed plants of *Aurea floribunda* as you describe. We should take them up carefully and pot them in good loam, mixed with a little rotten dung, and keep through the winter in the greenhouse or cold frame, with just sufficient protection to keep them from frost. The only attention they will require beyond the protection will be to remove the decayed leaves, and water when needed. They will probably require two or three smokings to keep down the green-fly, for that pest will soon run them if allowed to get ahead. In the spring, when in flower, they will be glorious objects, with heads of bloom two feet in circumference, and be grand for mixing with the early-flowering pelargoniums. *Prince of Orange* is very good for pot-culture, but its brownish-coloured flowers do not contrast so well with the rosy hues of the geraniums and cinerarias as the bright yellow-coloured flowers of *Aurea*.

NAME OF PLANT.—*Inquirer*.—The leaves enclosed are those of *Gesneria zebrina* and *G. cinnabarina*, two of the prettiest winter-flowering plants we have: treat them to a little warmth, and they will continue flowering for some time yet.

CREEPER FOR A RAILING—UNFRUITFUL PLUM-TREES.—*Lavender Hill*.—One of the very best plants in the world for a "railing round an area" is *Crataegus pyracantha*, the evergreen thorn, which can be easily trained, and when it has stood a few years, bears abundance of scarlet berries. The Irish ivy is invaluable for the purpose, and the Virginian creeper is not to be despised. Your plum-trees have probably sent their roots too deep into a cold, damp soil. Probably, if they were now taken up, and carefully root-pruned and planted again, with some fresh soil and manure to help them, they would again become fruitful.

Recent Subscriber will find in the "Town Garden," price 3s. 6d., ample information on the management of the flower-garden and window plants.

Mrs. Crawley may use for plunging either tan, moss, cocoa-nut fibre refuse, or even sawdust.

Ada's fern is *Adiantum reniforme*.

Bombastes is respectfully informed that editors are human and fallible, and therefore apt occasionally to make mistakes, and see a likeness between M and N. *Bombastes* will find, if he has patience to read the August number of the FLORAL WORLD, that his letter was answered to the signature of R. instead of B. But then *Bombastes* writes B in such a way, that to these editorial eyes it appears to be R; and if he goes on in that way, he must expect to be always on the quarrel with those he honours with his autograph, unless the Almighty should suddenly bless him with an inspiration of common sense, which, perhaps, is the only absolute necessity of which he stands in need.

Devonshire near (or bear).—We cannot afford time to examine your plan. We would not advise without seeing the ground. The subject is not one for an editorial opinion given gratuitously, but for a professional opinion rendered on the spot, and paid for.

C. M.—Hood's work on heating is the best. On the other subject, see the "Gardener's Magazine" of Dec. 29, 1866.

F. Z. E.—Replied to in article by Mr. Williams, of Ormskirk.

Mrs. Young.—We really know nothing of the invention you inquire about.

Thomas Baker.—The principal use of sand in composts is to give the mass a porous texture. Any sand that does this will answer, but sand of a binding, adhesive nature is not suitable; we want it granular or gritty. Sea-sand usually answers well for potting, and the small amount of salt it contains does more good than harm.

TREE CARNATIONS.—*B.*—Your seedlings will probably flower in a few weeks' time from this, if the weather continues warm. In the FLORAL WORLD of April 1865, was published the first thoroughly practical paper on winter-flowering carnations. In consequence of your inquiries, we have induced the writer of that article—who is one of the most successful trade cultivators of these flowers—to take up the subject again, and treat it more extensively. You had, therefore, in the October number a fuller reply than could be given here.

CHINESE PRIMULA.—*W. C., Helensburgh*.—See an article on Primulas in FLORAL WORLD for March, 1866. It is no injury to these plants to nip out the flower-buds before they expand. We never recommend dealers; the house you name is one of the best in the trade.



CAMELLIA.

THE FLORAL WORLD

AND

GARDEN GUIDE.

DECEMBER, 1868.

NOTES ON CAMELLIAS.

WITH FIGURE OF CAMELLIA MATTEO MOLFINO.



THE beautiful Camellia figured in this month's number suggests a capital opportunity for offering a few suggestions upon the culture of this valuable family. Camellias are now so universally grown that at first sight it may appear superfluous to say anything about their management; but the many failures in growing them satisfactorily which we see and hear of, remind us that such is not the case. We therefore think that the space occupied in our remarks on this subject will not be wasted. We shall pass over the subject of propagation, for young plants can be purchased at the nurseries at a much cheaper rate than they could be raised by the private grower; besides, few private cultivators have the proper convenience, or the requisite skill, for grafting hard-wooded plants. We will therefore limit our observations to a brief sketch of the after management, and the consideration of a few of the principal causes of failure. One of the most frequent errors of amateurs is inattention to the drainage of the pots; the crocks not being so arranged as to carry away quickly the water applied to the roots. Another consists in potting the plants in unsuitable soil. The third on the list may be summarized as badly-managed waterings, sometimes giving them too much, and at other times allowing the plants to suffer for want of that important element. To grow these plants properly they require liberal supplies of water at the roots, more particularly when in full growth. Now, if the drainage of the pots is not sufficient, or is choked up with soil, the water lodges in the ball of soil, turns it into a pasty sour condition, and the roots perish in consequence. Allowing long intervals to elapse between the waterings, when the drainage is bad, will spread the destruction of the roots over a longer period, but it will be none the less sure. All the pots above six inches in diameter ought to have not less than two inches of medium-sized crocks in the bottom, placed regularly, and covered with "flaky" leaf-mould, or lumpy

pieces of fibry turf, to keep the fine part of the soil from intermingling with the corks.

Camellias will grow tolerably well in peat and sand if carefully looked after, but a few incautious waterings will make it sour and unfit for the roots to work in. Nothing beats good turfy hazelly loam, chopped up with the whole of the fibre belonging to it, and mixed with about a fifth part of leaf-mould, or thoroughly decayed horse-droppings. The latter should be spread out and made dry before using, to admit of its being properly mixed with the loam, instead of being in lumps, as it will be if used moist. A liberal sprinkling of silver sand will make the soil in a better condition for the roots to run in, and thereby assist the healthy growth of the plants. When potting them, press the soil firmly round the ball, for if it is put in loosely the water will run through it, and leave the ball wherein the roots are perfectly dry, and the latter will perish accordingly. To give a general rule for the size of the new pot, we can only say that it should not exceed two sizes larger than the one the plant is taken from.

When camellias get into a sickly condition, through the partial loss of the roots, a portion of the old soil should be removed, and the plants repotted in the same sized pot again, filling in with fresh soil. If it can be managed, the pots should be partially plunged in a bottom-heat of 70°. The best time for shifting healthy plants into larger pots is just after they have completed their growth, and a few weeks before they are placed out of doors. These must not be disturbed materially at the roots, or a large portion of the buds will probably drop off. Weakly plants, or those that are leggy and require cutting back, should be taken in hand just as the young growth begins to push. After the branches are pruned in, the plants should be frequently syringed, and then, when the young growth is about half an inch in length, the plants should be repotted, much of the old soil being removed from the roots. After this, they should be kept close until the young roots begin to take hold of the fresh soil. After a gradual hardening off, they can be turned out of doors for the summer, along with the others. All the plants ought to be examined every spring, and any shoots inclined to grow straggling cut in. By this simple method they are always handsomely shaped, without the harsh necessity of a grand cutting back every three or four years, which can only be done at the expense of a season's bloom. After the flowers are over in the spring, a moderate syringing overhead will keep the foliage fresh and clean. A few hours with a sponge and clean water occasionally through the winter, may be very profitably employed in cleansing the foliage from the dust which settles upon it. Keeping the foliage perfectly clean is a grand point in camellia growing, and is next in importance to a healthy condition of the roots.

We are not exaggerating when we say that bushels of buds are lost annually through the plants being neglected when they are out of doors for the summer. They are perhaps forgotten for several days together, and the soil in the pots allowed to get dust dry. Or, perhaps, sufficient rain occurs to wet the surface for a couple of

inches in depth, no trouble being taken to examine and sound each individual pct, to ascertain if the soil is wet quite through. The leaves, from their leathery texture, show no signs of the suffering the plants are undergoing until matters become desperate. If the watering-can comes to their relief before the leaves flag, it is thought that no injury is done; vain delusion! for in a month or two, the buds fall off wholesale, and no end of wonder is excited as to the cause, for the plants may then be in the most favourable condition with respect to moisture at the roots.

Before they are put out of doors they should be freely exposed to the air. A shady position, away from the drip of trees, should be selected for their quarters, and each pot stood upon a couple of bricks, to prevent worms getting in through the bottom. The plants should be regularly looked over, and watered when required, but without over-doing it, for it is quite as easy to ruin their health with too much water as it is by drying them up.

The principal points in camellia growing are to pot them in sound fibry soil, to have the drainage perfect, to afford sufficient moisture at the roots without any excess, and to avoid all sudden changes and checks. When the pots are full of roots, and it is not considered desirable to repot the plants, a watering with weak manure water, will be of immense assistance to them.

SELECTION OF OLD VARIETIES.

In bringing the foregoing remarks to a conclusion, we cannot do better than give a list of twenty varieties, that are of good form, free bloomers, and can be purchased at a cheap rate.

Alba Plena, the old double white, which still holds its place as one of the very best.

Bealii, fine bright crimson.

Bonomiana, white, beautifully flaked with carmine.

Chandleri elegans, immense size, lively rose.

Comte de Flanders, good white, veined with rose, a fine imbricated flower.

Countess of Derby, another good white, flaked with rose.

Countess of Ellesmere, large white, flaked with carmine.

Donkelaarii, large semi-double crimson, mottled with white, admirable on account of its free flowering qualities only.

Duchess of Buccleugh, rosy carmine, good.

Fimbriata, white, petals beautifully fringed.

Lady Hume's Blush, flesh colour, fine.

Lavinia Maggi, white, blotched with crimson.

Marchioness of Exeter, beautiful rose.

Marie Morren, rich carmine.

Mathotiana, bright crimson, grand.

Paolina Maggi, pure white, beautifully imbricated.

Storjii, fine rosy pink.

Teutonia, rose, striped with white.

Valtevarredo, beautiful rose, form first-rate.

Variiegata, an old favourite, bright rosy crimson, mottled with white, rather small, but a free bloomer, invaluable for bouquets.

SELECTION OF NEW VARIETIES.

Matteo Molino, a finely imbricated flower, superbly coloured, bright cerise and pure white.

Bello Romano, flowers large and finely formed, flush flaked with crimson.

Comte de Toll, beautifully formed, colour pure salmon. This is a charming novelty, and the habit of the plant is all that can be desired.

Lavinia Maggi Rosea, a magnificent flower, of a fine red colour. The plant is a good grower, and the flowers last a long time in perfection.

Madame Ambroise Verschaffelt, very neat, white, suffused with blush, and veined and spotted with rose, delicate and pleasing.

Nonpareil, the form of this flower is perfect, the petals have great substance, the colour is delicate flesh, striped and splashed with pink. The plant is one of the best in habit, and flowers abundantly.

Queen of Beauties, a grand variety, which is certain to maintain a high position for many years to come, colour blush, form imbricated.

A dozen or so more might be added, for amongst the new camellias of the past seven years, a considerable proportion possess sterling merit; but we have named the *crème de la crème* only, believing that in papers of this kind selections of plants cannot be too carefully prepared.

S. H.

NEW NOTES ON CAMELLIA CULTURE.

BY MR. JAMES BARNES,

Head Gardener to Lady Rolle, Bicton.



HAVE almost as many Camellias within two minutes' walk of my house as any Chinese mandarin, and I suppose they must have a good many, and if they have not, they ought to have. I have them in beds in the flower garden as green as the darkest and richest ivy you ever saw, in favoured moist places, away from smut, or any dangers or impurities. I have them in our shrubberies growing as healthfully as the common laurel. Some of the sneering and fault-finding variety of gardeners may think it futile to attempt camellia culture in this way, saying that the blooms get cut off by the spring frosts, etc.; but even if such were the case regularly, why should anybody object to my employing the camellia as a hardy evergreen? Frost does occasionally nip off the opening flowers in early spring, it is true, but then our plants bear such quantities—such nests of buds on every spray, that there are always plenty ready to yield to the softening influences of the first mild and sunny days, and the result is that I may often cut hundreds of beautiful blooms in spring.

I introduce the subject in this way just to remind many people in the more southern and favoured parts of England and Ireland, that they might with advantage try the camellia out of doors much

oftener than is at present the fashion. Against walls success could hardly be doubted—hereabouts there is no trouble with them in the open beds.

But although we grow a large quantity out of doors, we have also what I beg to submit ought to be needful in every public and in many great private gardens where expense is not spared, and that is a good camellia house—a camellia grove. It requires but a very slight stretch of the imagination to fancy it, when our fine planted-out specimens, in the central bed, on the back wall, and against the pillars along the front are in flower. The house is one hundred and twenty feet long, by twenty-two feet wide, and eighteen high, span-roofed.

I well remember the pleasure I used to feel nearly fifty years ago, when visiting the camellia houses at Lee and Kennedy's nursery, at Hammersmith; Loddiges', at Hackney; and Colvill's, in the King's Road, Chelsea; and observing these beautiful evergreen plants, with flowers of such striking beauty and variety of colour, blooming throughout the cold and frosty winter and spring. Since then, many improvements have been made, both in kinds and in their culture.

At that time poor Robert Sweet was in his glory, among the fine collection of camellias and other plants at Covill's. It was a fine collection for the time. Another thing, too, used to delight my sight and hearing at the time when I visited Sweet's house, which I frequently did, and that was the success with which he used to keep several redstarts and nightingales in full song and good health throughout the winter. Sweet and Edward Body, a friend of his, were the only two persons whom I knew to succeed in keeping these songsters in perfect health and song through the winter months.

But to the camellia. An orange-house was put up here about twenty-five years ago, and that is now our camellia-house. It has a wall on the north side, and upright sashes in front, made in two pieces, so as to slip up and down, for air giving. Between the sashes were ornamental pillars, presenting a flat surface inside of about sixteen or eighteen inches wide. We grew oranges and camellias together for a long time, now and then turning out a camellia when it got too big; and these have all done well, and now flower profusely in the open air. Soon, however, I began to think of a new house for the oranges, and to imagine how well our large house would look planted with camellias alone; and soon my noble employer allowed me to build a fine one, ninety feet long by sixty wide, quite a little winter garden, in which we now grow them. We cleared out the house to prepare it for camellias exclusively—thoroughly cleansed the house, and painted it. A wire trellis was put along the back wall, also on the pillar faces between the front sashes. Then I got together the soil with which to plant our house. A quantity of charcoal was brought in, rubble collected for drainage, and a compost prepared, consisting of heath soil, light turfy loam—healthy turfy loam, such as the healthy turfy loam we make use of for pine-growing—in quantities of about one-third of each, with a large quantity of sharp clean-washed river or drift sand, and a goodly

portion of charcoal, all mixed together. Then we emptied out the borders to a depth of three feet; rubble was then put in for drainage, and a quantity of rather large charcoal—nearly a foot of it between bricks and compost. Over that was put tough rooty grass turves—grass-side downwards of course. We determined the arrangement of planting beforehand, as the plants were large and very valuable, and if arranged in an unsatisfactory manner, as regards colour or anything else, much trouble would eventually result. Turning out was commenced at one end, by placing under each plant the requisite quantity of soil to bring its collar to a height of eight or nine inches above the stone curb of the walk, which runs all round, in order to allow for the settling down of the soil. As the plants were turned out and arranged, all hands were employed wheeling in soil, and fining it down to a proper consistency, till the whole was filled up and the central bed finished off. Then we tied the plants to trellises on the back wall, and drove in stakes in the bed, to bring the large specimens as near as possible to the shape we designed them, and the spaces we wanted to fill. All this done, the engine was set to work, and the plants genially washed down for weeks. That was in early spring. They flowered well. In the middle of April we removed all buds and remnants of buds, did a little cutting in, and gave the house a little gentle heat from through-pipes, which we can heat at pleasure from a boiler that heats other houses. These pipes are under the footpath, and are covered with very neat iron gratings. Portland stone we use for the curbs, etc., and it looks very nice, and is highly suitable for such work. The growth of the camellias in this, during the first summer, was something marvellous; they grew like willows, and without being in the least drawn or lanky, from the abundance of air we gave, and from the full clear light afforded by our span-roofed house. For many years we have had little further work with this house, and it has afforded a perennial source of satisfaction, providing as it does a very enjoyable promenade all through the winter and spring, when for months it is rendered paradisiacal by thousands of variously-coloured blooms.

The plants make their annual growth under the conditions described. When growth is completed and the buds formed, rest is allowed for shutting off the heat, and throwing open the sashes and doors, night and day. When the buds become plump, and too thick, we commence thinning. In July, and from that time to December, much thinning has to be done. We adopt the following method with great success: In the middle of April all bloom and buds are pulled off, and all the trellis plants are unfastened; the whole of the specimens are pruned, cut in, and regulated to our fancy. Occasionally an old fellow showing any tendency to scragginess or exhaustion is cut in "to the bone," and soon he breaks out again with a host of young and energetic shoots, that form a dark and glossy head by the end of summer. Fresh compost is here and there forked in; good soakings of clear manure-water are given; the whole of the plants are thoroughly washed down with a powerful engine; heat is turned on, and the washing of the plants is continued morning and evening for about six weeks. The house is shut

up early and when full of vapour, and then, treated like the contents of a hothouse, the growth of our camellias is rapid and strong. When they are fairly started into growth, manure-water is given at the roots, and plenty of gentle but thorough syringing. After five or six weeks' growth, the plants are like trees in a wood, meeting over the walks in the fulness of their exuberance. When forming their buds, air is given in plenty, and the syringing and waterings somewhat restricted. Bud-thinning is carried on through the autumn. I don't care for more than one good bloom at the end of each shoot. In September, the plants are again looked over, and tidied up here and there, the house made as neat as possible, and a good washing down given the plants on fine days. Soon after the earliest flower-buds begin to open, and from that time onwards we have a gradually increasing bloom, till the whole house bursts forth in beauty in the spring. No syringing is given all the blooming time, but *plenty* of water at the root. So much for camellias planted out indoors—the most satisfactory way of growing them where the space can be afforded.

VEGETABLE FORCING.

BY MR. WILLIAM COLE,

Head Gardener, Ealing Park, Ealing.

(Continued from page 327.)

ASPARAGUS, SEAKALE, AND RHUBARB.



INEXPERIENCED and shallow-thinking people run away with the idea that a good house of grapes, or a few specimen plants, is the best proof that can be had of a gardener's abilities, and think but little about the multitude of other matters which necessarily engage his attention. I am of quite an opposite opinion upon these matters, and think that a good and regular supply of vegetables, at all times and seasons, to be as good a test of a man's claim to rank as a first-class gardener, as the best house of grapes or peaches that could be had. I have long been convinced of this, and have looked upon vegetable growing as one of my most important duties; more especially those which are grown under artificial conditions; but I regret that few young men hold the opinion I do upon this point. In making these observations, it must not be supposed that I am indifferent to fruit and plant growing, as can be easily seen by any one inclined to pay me a visit at Ealing Park. I hardly know which out of the three subjects I have now in hand I ought to give precedence to, for they are all important to a well-kept table. Suppose we begin with the—

ASPARAGUS.—The success attendant upon forcing this delicious vegetable, is just in proportion to the strength of the roots which are to be subjected to the forcing process; for if the roots are small and

weak, very little success can be expected, even with the greatest care, at this season; but for all this, much depends upon how they are now managed; for of all the three subjects I intend dealing with in this paper, asparagus requires the most careful handling, so as to get it strong, and with its full flavour. Where the expense can be afforded, there can be no doubt that permanent beds, with trenches between for the reception of the fermenting materials, is the best, and attended with the least degree of trouble; but to go into that thoroughly, would take up too much space at this moment. I shall, therefore, confine myself to taking the roots up, and forcing them in temporary contrivances. To get asparagus good, and with its full flavour, it must have an abundance of light and air admitted to it directly the young shoots begin to peep above ground. There are certain exceptions to this way of growing it, for some people prefer seeing on the table a bundle of what bears as strong a resemblance to peeled osiers as it does to asparagus; and what is of about as much use, so far as its consumption goes. But I suppose the majority of my readers to be desirous of growing asparagus for eating, and shall make my remarks accordingly; as for those desirous of growing it to look at, I must leave them to find out the best way to spoil it for themselves,—I can be no party to it. It is of very little consequence whether the forcing is carried on by the aid of fire heat or fermenting materials, so long as the two grand essentials to success, light and air, can be had full command over. In either case, a nice bed of sweet fermenting materials should be made up, upon which the roots are to be placed. I prefer leaves for this purpose, as the heat derived from them is steadier, and lasts a greater length of time than manure. To keep up a regular supply, a couple of two-light frames ought to be put into requisition; one can then be in preparation whilst the other is in bearing. We will suppose that fermenting materials alone are used, the beds should be made up four or five feet in depth, with materials that have been thoroughly sweetened by frequent turnings, and the frames placed on it. In two or three days after this is done, the entire surface ought to be covered with turf sods, not less than two inches in thickness, to reduce the risk of burning to the lowest possible minimum; and upon these about four inches of fine soil or rotten leaf-mould placed for the reception of the roots. In taking up the roots, a certain amount of care should be exercised to prevent their being broken about. It is of little consequence how old the roots are, so long as they are strong and vigorous; but they are of little use before they are four or five years old. After the roots are taken up, they should be packed closely together on the bed, and then covered firmly with four or five inches of soil, working it well in between the roots. The soil is of little or no use in assisting the crop beyond keeping an equable degree of moisture about the roots. If the soil is nice and moist when first put on, little or no water will be required from the time of introducing the roots until they have done bearing, if grown on dung beds. Where the top heat is derived from hot-water pipes, frequent waterings will be necessary to keep the bed moist. With respect to watering, a sharp look-out must be kept to guard against the bed getting too

wet, or too dry. Excessive moisture will rot the roots, and drought will prevent their bearing. The bottom-heat should average 70° , and not vary much either way; and the top-heat from 55° to 60° . When once the young shoots make their appearance above ground, a little air should be left on at all times, unless the weather is unusually severe. Whenever the weather will admit of its being done, the lights should be tilted from six to eight inches at the back; and in exceptionally fine weather, drawn off entirely for an hour or so during the warmest part of the day. By this kind of treatment it is wonderful how much the flavour may be improved to what it would be if very little attention was paid to air-giving, and the frames kept closed. The asparagus is best for table when it is about six inches above the surface, and should be cut with about two inches of the blanched portion. This is hard and tough, and enables the cook to send it to table without being broken. The fresh beds should be made up at intervals of three weeks each, and, generally speaking, a good shaking up, and a few barrowfuls of hot manure at each renewal, will be quite sufficient, so far as warmth is concerned. The old soil and sods will also do for the whole season, fresh crowns alone being required. With attention to the few rules I have laid down, there need be no difficulty in having good asparagus throughout the whole winter, provided the materials necessary for carrying it out are at hand. We will take next—

SEAKALE.—This valuable esculent is, if there be any difference, of greater value and importance than the preceding. A larger supply can be obtained in a limited space, both in growing the plants for forcing, and also whilst that process is being carried on. It can also be sent to table in good condition with a less degree of skill and attention than asparagus, though the latter is by no means difficult to manage, if the cultivator would but give it the little attentions I have pointed out. There are several ways of forcing seakale, all simple; the most important of which are, taking the crowns up, and packing them close together in a warm dark place, or covering the crowns with pots and warm manure or leaves. Where leaves are plentiful, and an out-of-the-way border can be set aside for the purpose, I certainly prefer forcing it out in the open border. Finer seakale can be had with very little trouble attached to forcing it, and it does away entirely with the necessity of growing fresh crowns yearly, which is by no means an easy task for those who have but little knowledge of gardening affairs. When grown for forcing out of doors, the crowns should be planted in rows three feet apart, and the same distance in the rows. This will give each plant ample space for its individual development. The length of the border depends upon the requirements of the family, and the space that can be spared. The border should be divided into equal divisions, each of which is to be started at separate times. These, too, must be proportioned according to the size of the family, so that a continuous supply can be kept up without a glut or scarcity happening at any time. Where there is but a limited number of crowns to be forced, it is not well to begin too soon, for seakale is most needed through January, February, and a couple of weeks in March. Previous to that time, we have plenty of cauliflowers and

Cape broccoli, and afterwards the spring broccolis begin to turn in. If not already done, the whole of the dead foliage must be cleared away at once, and the other operations conducted something after this style. The first batch to be covered with pots and fermenting materials of some kind, sufficient to raise the temperature inside the pot to 70°. The next with pots, and sufficient protection to keep the frost out; and if enough to generate a few degrees of warmth, so much better. All the other crowns must be covered with something to prevent the frost penetrating to any depth in the soil round them. After the first lot has been in action a fortnight, the second should be started, and then when the first lot is gathered, the covering materials should be shifted to the third lot, and the same order observed to the end; observing to carefully protect the forced crowns from the frost, with a few coal ashes, or something of that kind. It is much the best to use proper seakale-pots, and then there is but little trouble in examining them when necessary.

Forcing seakale indoors is by no means a difficult affair. The crowns are taken up, the small side roots trimmed off, and set aside for planting the following season; they are then packed closely together in deep boxes, covered closely to obscure the light, and then placed in a temperature between 60° and 80°. I grow a large proportion of mine in the mushroom house, and simply stack the crowns together on one of the shelves. Whether in the boxes or not, all the space between the roots is filled with soil, and kept nicely moist. The temperature should not exceed the limit assigned by me, or the seakale will be drawn up weak and spindly, the supply considerably diminished, and the flavour materially injured. Seakale is in fine condition to come to table when the young shoots are between six and eight inches in length, and should be cut with just sufficient old wood to hold them together. To remove more than a quarter of an inch of the crowns of those out of doors injures them for next year, but it is of no consequence how much is taken off those forced indoors, for they are unmercifully consigned to the rubbish heap after the crop is gathered. Though hardly necessary, I had better perhaps say that the crowns must be kept in perfect darkness, or the produce will be worthless. With this caution, we will turn our attention to a few very brief remarks on the last subject.

RHUBARB.—It is entirely unnecessary for me to say much upon forcing rhubarb. It is merely a matter of opinion as to which is the best way. I firmly believe that grown fully exposed to the light, it is of a far better and richer flavour than when grown in the dark, like seakale. I simply take up a few large stools, and place them in one of the houses devoted to growing French beans or strawberries. They are taken up with as much soil as practicable, and after they are placed in the house, other soil is packed round them, and the roots plentifully supplied with tepid water. No skill whatever is required to force rhubarb. A temperature of 65°, liberal supplies of water, and fresh roots introduced at regular intervals, is the sum and substance of rhubarb forcing. Those who prefer the beautiful rich colour and insipid flavour of that grown in the dark, can gratify their wishes by covering a few stools with leaves or hot

manure, in exactly the same manner as advised for seakale, with the exception of having a medium sized tub, instead of an ordinary sized seakale-pot. Or if they have the convenience of a mushroom house a few stools can be stowed away, where they will occupy an analogous position to those in the forcing-houses. I have also grown it in large barrels, closely covered, and placed in the pine stove, and have found it to be anything but a despicable way of obtaining a good supply of blanched rhubarb.

ROUGH AND READY GARDENING.—No. V.

BY JOSIAH ILLMAN,

Wellington Nurseries, Strood, Kent.

PEACHES, NECTARINES, AND APRICOTS, WITHOUT THE AID OF
WALLS OR GLASS.



THE Editor has invited me to contribute my mite towards his series of papers on "Rough and Ready Gardening." I cheerfully comply, both from feelings of personal respect and because of my admiration of the *FLORAL WORLD* as one of the most useful works of a most useful class. I might, indeed, be pleased with the opportunity of communicating what I have to say, because I believe it to be important, and because I know it to be novel; however, I will leave the reader to judge on those points, and will deliver my message as briefly as possible.

My nurseries are not in Italy, nor even in Devonshire, as some appear to suppose, but in Kent. The climate is not one of the best in England, nor is it one of the worst. We have visitations of frost late in the spring, as in all the Midland and South-Eastern Counties, and vegetation frequently suffers thereby, especially in those years that are characterized by extra warm weather in February. These few particulars are essential points of my story, as the sequel will prove. It is to be understood at the outset that there is no peculiar advantage of climate to be obtained by residence at Strood; so we conclude that what has been done here may be repeated in ten thousand gardens in various parts of Great Britain.

In February, 1858, I found myself in possession of a considerable surplus stock of peach, nectarine, and apricot trees—a common event enough with nurserymen. Instead of potting them, as is the custom, to have them ready for sale at any time, I planted them out. Now, to obviate all possible mystification, I must say that our soil, like our climate, is of a common-place character. It does not consist of gold dust; it is neither particularly fruitful nor particularly barren. It is a good sandy loam, in which almost every kind of hardy plant (trees included) thrive fairly. The peach, nectarine, and apricot trees were such as are called "dwarf one-year cut-back trees" in the

trade. They were planted on a slope facing south-east, about 130 feet above the level of the Medway. As a matter of course, they produced no fruit in 1858, but in 1859 they gave us such a nice crop, and the fruit ripened so well, that I began to feel quite an interest in them that I had never felt in such trees before. They seemed to go clean out of the shop into my heart; at all events they went into my head, and I thought a good deal about them. You will remember, of course, that 1859 was a good year. It began and ended well. I have a memorandum at hand, in which it is recorded that in 1859 I gathered from one of my apricot trees 300 fruit; from one of the nectarines, 400. The Royal George peach had 100 fruit on it; Late Admirable peach, 120; Noblesse peach, 130. In the year 1860 we had no fruit, though the trees promised well, but on peach walls and in orchard-houses it was much the same. The sun was scarcely seen the whole season through, and peaches rotted on the bough. The summer of 1861 was bright and hot, but the show of fruit was small, owing to the imperfect ripening of the wood in 1860. What fruit there was, however, ripened perfectly, and was astonishingly good both in colour and flavour. Now, I felt persuaded that these fruits might be grown in every garden south of the Trent, and perhaps far beyond that line northwards, with no more trouble or risk than attend the cultivation of apples and pears. Our returns vary, of course. In a cool wet summer the fruit ripens very late and imperfectly. But if I may consider ten years' observation and experience sufficient for a judgment of the case, I should say that three years in five our trees pay us well, and in the other two they make either a poor return or none at all. For example, in 1868 we had but little fruit, owing to the spring frost, which caught the trees when in flower; but in the previous three years we have taken from some of our trees 500 to 600 fruit each, and from others a sufficient quantity to abundantly repay us.

I should be glad to have the case confirmed by the experience of other cultivators, but this mode of procedure is as yet too little known to give hope of finding many witnesses. However, I can refer to Mr. W. H. Stacey, of Great Dunmow, Essex, who has lately adopted this practice with satisfaction. He put out, last winter, some trees that were becoming too large for his orchard-house, and they bore in the past summer an abundant crop, and the quality was excellent. He sold a considerable quantity at 3s. per dozen.

The system of cultivation to be pursued for the production of these fruits without the aid of glass may, I think, be summed up as follows:—1. A good but rather light and dry loamy soil; a damp fat soil would render the trees too gross to do well without a wall. 2. Dwarf trees are to be preferred to standards, but half standards may be used in places well sheltered. In planting a quantity, maiden trees would answer and be the cheapest, but for immediate results well-furnished pyramids would be profitable, such, in fact, as would be purchased for the orchard-house. 3. The position of the plantation should be south or south-west if possible; south-east allowable, but not desirable; north objectionable. Shelter from north and east desirable. 4. During the early part of the summer the young shoots

should be once or twice pinched back, to promote the formation of flower-buds, and to keep the trees well furnished, for if lean they do not endure wind and frost so well as when fairly furnished. 5. In case of frost occurring when the trees are in flower, or after a good crop of fruit is set, some shelter could be afforded by means of canvas or nets stretched on rough poles, put in aslant amongst the trees. 6. In the event of the trees growing very vigorously, they should be lifted every two or three years in November. 7. Plant as early as possible after the fall of the leaf. 8. If planted in the most sunny and sheltered spots in an orchard or ornamental shrubbery, they would have the shelter of other trees, and prove as beautiful in bloom and fruit as any trees that could be planted.

SELECTION OF VARIETIES.—The sorts that have been most fruitful in my plantation and that have generally ripened their crops well are the following.—*Apricots*: Moor Park, Hemskirk, Royal Orange, Breda.—*Nectarines*: Elruge, Pitmaston Orange, Roman, Hunt's Tawny.—*Peaches*: Early Anne, Red Magdalen, Royal George, Vanguard.

A LARGER SELECTION.—For those who are peculiarly circumstanced, as many of your friends in the south and west of England are, and happily ignorant of the difficulties we have to contend with in these eastern parts, I have prepared a larger list. This, like the former, is the result of observation and comparison, and comprises only such varieties as have been fairly tested here in open borders during ten years past. I have added a list of plums not usually grown as bushes, but which are eminently suitable for open borders in good climates.—*Apricots*: Alberge de Montgamet, Breda, Hemskirk, Large Early, Masculine, Orange Early, Roman, Royal, Shipley. *Nectarines*: Downton, Duc de Telliers, Elruge, Newington Early, Murray, Pitmaston Orange, Roman Red, River's Orange, Hunt's Tawny, Violette Hative.—*Peaches*: Late Admirable, Barrington, Bellegarde, Early Anne, Early York, Grosse Mignonne, Red Magdalen, Royal George, Violette Hative.—*Plums*: Coe's Golden Drop, Jefferson, Purple Gage, Reine Claude de Bavay, Coe's Late Red, De Montfort, Early Orleans, Mitchelson's, Belle de Septembre.

EDITORIAL NOTE ON THE FOREGOING.—Mr. Illman has done the state some service in establishing the possibility of growing these valuable fruits in the open border in the more favoured climates of Great Britain. In 1863 I saw the trees. They were in perfect health and loaded with fruit, which ripened perfectly. On two occasions the samples he has forwarded for my inspection were in quality quite second-rate, but on some half-dozen other occasions the fruits sent were scarcely inferior to the productions of a good peach wall. If by this system we can obtain good peaches and nectarines six years in ten, as appears to be fully established, there is a substantial benefit secured in the expansion thus far of the routine of practical gardening.—S. H.

TREES AND SHRUBS THAT FLOWER IN SPRING.

BY GEORGE GORDON.



O those who grow and love flowers for their own sakes, rather than for the sake of being in the fashion, or of outstripping their neighbours, I venture to say that at no other season is the garden so thoroughly enjoyable and beautiful as it is in the spring, just as the young buds are bursting into leaf, and many early-flowering plants are beginning to display their charms. It's not my intention to enter into the subject of spring gardening, in the ordinary acceptance of the term, for that has been already dealt with in a far abler manner than I could ever hope to with my feeble pen, but I wish to say a few words about a few of the best early-flowering trees and shrubs that would, with a little management in their planting and disposition, add much to the beauty of the gardens and shrubberies in the earlier parts of the year. I should think that there are but few readers of the FLORAL WORLD who do not take some interest in spring-flowering plants, after the many excellent and entertaining papers which our worthy Editor has favoured us with upon this interesting subject. I have, therefore, no necessity to enter into the advantages of having a good display of spring flowers, but I cannot well refrain from saying that those who have not a good selection of spring-flowering plants, trees, and shrubs in their gardens, miss one of the greatest charms of that delightful season.

This is a capital time for making selections, and planting all kinds of deciduous trees and shrubs, and many evergreens may now be planted with every chance of doing well, if got in at once. I will first give a few general remarks upon planting and preparing the soil, and then I will enumerate a few kinds that I know to be good. I shall simply confine my observations to planting young specimens, for the subject of transplanting in its entirety is too vast to be mixed up with advantage with the subject I have in hand at this moment. I have had much practice in planting trees and shrubs in my time, and I have found that the newly-planted trees have succeeded just in proportion to the care bestowed upon taking them up and replanting. I firmly believe that thousands of trees are killed annually, through a want of knowledge on the part of the planters, and I am bound to say that I know of nothing more ridiculous than writing to nurserymen, blaming them for trees that have been killed through improper planting. I admit that in a few instances these things are sent with the roots chopped about too much, through a want of care in taking them up, but not frequently. When I meet with any, I have but one way to deal with them, and that is, to send them back at once. I have very few failures and little to complain about. Unless the subjects to be planted are very large, I care little about their having balls of soil, so long as the roots are preserved intact. This can be easily done by opening out the trench at a reasonable distance from the stem, and then working the soil from amongst the roots with a garden fork.

If a clump of shrubs is to be planted, the ground should be trenched as deep as its nature and composition will admit, and if poor, a moderate dressing of good rotten dung or loam will be of great service in promoting a free and healthy growth. Heavy soils may be improved by giving them a good dressing of road scrapings, or soil obtained from the banks alongside the road, such as is to be met with in country lanes. If it is not practicable to dress the ground with light soil, a few barrowfuls should be provided to place immediately over the roots for them to strike into. The holes for planting should be made large enough for the whole of the roots to be spread out without cramping. Where single specimens are to be planted singly on the lawn, or elsewhere, the holes should be from four to five feet across if the trees or shrubs are any size at all. It is impossible for them to do well when they are planted in holes that are only just large enough to take the roots. Unless the soil is naturally loose, it is like putting them into large pots, for the roots have a difficulty in penetrating the hard soil with which they are surrounded. When the holes are about the size I have mentioned, there is sufficient room for the roots to run in until they are well established, and able to go through anything. The mere question of breaking up the turf is not worth considering, for, after allowing a week or so for the soil to settle, it can be laid down, and in a few days, if laid down properly, no one would know that it had been taken up. It is more especially necessary to have the holes a good size in uncongenial soil, as it affords an opportunity of adding a liberal supply of fresh stuff to make it in better working order.

The roots of any of the plants which I shall name must not be buried deep, particularly in naturally cold and heavy soil. A little of the surface soil should be placed for the roots to rest upon, which, after being nicely and regularly spread out, should be covered with the same kind of soil, and the hole filled in with the best soil that can be conveniently had. The soil should be well trod as it is thrown in, and then it is thoroughly firm throughout the whole depth. I have frequently seen the whole of the soil returned to the holes, and then slightly trod on the top. When this is done it is impossible for the trees to do well, for the soil about the roots is so loose that they have a difficulty in establishing themselves. After the planting is finished, all the trees and shrubs that are likely to be loosened by the wind should be secured in their places with stakes, and if very sharp weather is likely to set in, a sprinkling of long litter should be placed about them to prevent the frost getting to the roots or loosening the soil. No planting should be done when the ground is frozen, or sodden with rain or snow. This is a good time to plant, as it will give the trees and shrubs a chance to make new roots before spring.

I have briefly glanced through a few of the principal points to be observed in planting, and we will now turn our attention to picking out a few of the best kinds for early flowering. This is somewhat of a difficult affair with so many good things to choose from. The appearance of many gardens in spring would lead one

to suppose that good early-flowering things were scarce, were we to judge from the dull and barren appearance which they present, instead of being as fresh, bright, and beautiful as they might be. I need not dwell at any length upon the beauty of the Horse-Chestnut; that, I believe, is sufficiently well known. Where there is an abundance of room, or for avenues, they cannot well be beaten for producing a grand effect. The scarlet variety is very pretty, but I consider the common one to be the best. The Snowy Mespilus, *Amelanchier botryapium*, has been rightly named, for, when in full flower, it has the appearance of huge masses of snow. This is good up to any height, not exceeding twenty feet. We have some good things amongst the Almonds, with their lovely pink flowers. The common one, *Amygdalus communis*, is good for the back part of shrubberies, and the two dwarf kinds, *A. nana*, red, and *A. nana alba*, white, are best suited for the front part. All are, when in flower, the most lovely things imaginable. For a dwarf-growing plant to cover low walls, or form dwarf bushes, I know of nothing to equal the lovely *Berberis Darwini*, with its beautiful, dark, glossy foliage, and sheets of golden flowers, which are succeeded later in the season with purple berries. This is decidedly the best yellow-flowering dwarf shrub with which I am acquainted. *B. dulcis* is also good, but bears no comparison with the above-mentioned. From the Cherries select *Cerasus japonica multiplex*, semi-double pink, and the white variety of the same. *C. padus bracteosa* is a pretty pendulous variety, with white flowers. The Thorns should enter largely into the planting of all sorts of shrubberies and park scenery, for few flowering trees can equal them in point of beauty when in flower. I shall put down the following as the best, as they can be depended upon for producing a good effect:—*Crataegus oxyacantha multiplex*, double white; *C. oxyacantha bicolor*, double scarlet, tinted with rose; *C. oxyacantha punicea*, dark red; *C. oxyacantha fl. pleno*, double pink; and by no means fail to add the beautiful *double scarlet*, sent out a short time since by Paul and Son. The Cydonias are favourites of mine, for they flower as early, and are by no means deficient in beauty. They are best adapted for walls and fences, and I have seen good hedges of them. They are beautiful grown any way. I like the old crimson one best, but the white variety is worth growing for the sake of a change. Amongst Cytissus we have a few valuable subjects, *C. laburnum* being by no means the least, with its graceful drooping racemes of rich golden flowers. The laburnum is equally at home either in highly dressed or semi-wild shrubberies, and it has nothing of its colour to touch it for producing a fine effect in park scenery, and is a fit companion to the Thorns. Of the others, *C. albus*, white; *C. atro-purpureus*, dark purple; *C. falcatus*, yellow; *C. sessifolius*, yellow; and *C. supinus*, yellow, are deserving attention. For front rows, *Daphne mezereum* is a pretty subject, with its pretty pink flowers. Every one knows the lovely *Deutzia gracilis*, therefore I need not say a word in its praise. That and *D. crenata flore pleno*, double rose-coloured flowers, and *D. scabra*, white, are capital subjects for front rows; and if there is any prospect of there being a dearth of spring

flowers indoors, the plants can be easily taken up, potted, and introduced into a little warmth. *Forsythia viridissima* is one of the earliest flowering shrubs we have, and must not be passed over. Double-flowering peaches, like the almonds, are capable of producing a beautiful effect in garden scenery if judiciously intermixed with the dark foliage of the evergreens. The *white-flowered*, *crimson-flowered*, and *carnation-flowered* varieties are all good, and ought to have a place amongst all collections of spring-flowering shrubs. Next to these we have the Syringas, which flower rather late in the spring.

The undermentioned are good:—*Philadelphus coronarius*, *P. speciosus*, a free-flowering white kind, and *P. Zeyherii*, with good flowers, but scentless. A few of the flowering plums are valuable, for the sake of variety, though scarcely so good as some of the shrubs already named. *Prunus domestica*, *myrobalana*, and *P. trilobata*, with fine large double pink flowers, are the best. The Ribes are especially valuable, for they grow and flower freely in any soil and situation, provided they are not overshadowed with large trees. *R. sanguineum*, crimson, and *R. sanguineum flore pleno*, double crimson, are the two best. *R. albidum* and *aureum* are pretty, but not equal to the foregoing. Another free-growing subject that will do well anywhere is the *Robinia pseudacacia*, with its racemes of pale-coloured flowers, and handsome pinnate foliage. It should, however, be planted in half-wild places only, for from the moment the flowers expand in the spring until every leaf is down in the autumn, it keeps up a perpetual litter. I shall have to dip deeply amongst the Spiræas, for we cannot well dispense with several, if we are desirous of making our shrubberies as beautiful as possible. The following selection of six cannot well be improved, so far as my knowledge extends with them, and I know pretty well all that are worth knowing: *S. aricefolia*, beautiful free-flowering white; *S. bella*, beautiful pink; *S. callosa*, the best red; *S. Lindleyana*, good white; *S. Reevesiana*, white; and *S. sorbifolia*. This brings us to the Lilacs, which are, without doubt, some of our most beautiful flowering shrubs, whether we take into consideration the extreme beauty of the flowers, or their delicious fragrance. *Syringa Emodi* and *S. Josikæa* are two fine species, but for real usefulness, none beat the common Persian, *S. persica*, and its white variety, and *S. vulgaris* and its white variety. Though scarcely so showy as the foregoing, we must not forget the pretty *Weigelia rosea*, with its pretty bell-shaped flowers. The last plant that I shall name belonging to this section is by no means the least, for *Wisteria sinensis* is, I am inclined to think, the grandest spring-flowering plant in cultivation. It will do to cover trellises or walls, and form pretty objects trained to tall poles, fixed in prominent positions. I should fancy that those who have been fortunate enough to see the Wisteria in front of the late Sir Joseph Paxton's house, adjoining the Crystal Palace at Sydenham, and the one which forms a summer-house in Kew Gardens, when in full flower, will not soon forget the impression which they have received. I find that in my anxiety to make my selection as brief as possible, I have omitted to mention the good old *Mahonia*

aquifolia, with its grand masses of rich golden yellow flowers and dark metallic foliage.

I ought properly not to say anything about American plants, for they scarcely come within the province of this paper, and they deserve one to be devoted expressly to them, but I shall not be going far wrong in saying a few words about them. The soil for these should be peat alone, or loam and peat mixed. Some of the common free-growing Azaleas and Rhododendrons will do very well in good silky loam, full of the rootlets of the grass. *Andromeda floribunda*, beautiful bell-shaped white flowers, and *Erica herbacea carnea*, are particularly good for edging large beds of other shrubs, and are worth growing independent of this qualification. The Ghent Azaleas, in the various colours of *buff*, *orange*, *scarlet*, *rose*, *salmon*, and *yellow*, can be planted extensively without there being much fear of having too many. And for two dozen good Rhododendrons the following can be depended upon:—*Alarm*, *Album elegans*, *Atro-sanguineum*, *Amœnum*, *Barclayanum*, *Blandyanum*, *Brayanum*, *Blysianum*, *concessum*, *delicatissimum*, *elegans*, *Etoile de Flanders*, *Jacksonii*, *John Waterer*, *Lady Eleanor Cathcart*, *Mrs. John Waterer*, *Mrs. Clutton*, *Onslowianum*, *purpureum elegans*, *Rembrandt*, *roseum elegans*, *Schiller*, *Sidney Herbert*, *Snowball*. I have been careful in selecting those that I know to be good, and such as can be obtained at average rates, which I think will be of more service than recommending new kinds that are beyond the reach of most people, and perhaps little or no better than older kinds.

A FEW GOOD WINTER-FLOWERING ORCHIDS.

BY AN AMATEUR CULTIVATOR.



SINCE I contributed my paper on Cool Orchids, I have thought that a few notes on the best winter-flowering kinds may be useful. The advantage of having an orchid-house is not more forcibly illustrated at any season than it is during the winter months. We do not possibly get such a grand display of bloom as we do through April, May, and June, but in neither of the other departments do we get a more beautiful display of flowers than we do in this structure. I know in the winter of nothing that affords me a more delightful treat than to spend a few hours in the comfortable warmth of the orchid-house, where there is a fair collection of winter-flowering kinds. I am so thoroughly fond of this class of plants, that it is a labour of love to me to contribute a few hints now and then, that may perhaps be serviceable to those who have not had such a long acquaintance-ship with them as I have.

We will suppose our winter to begin the 1st of November, and end with February, and I will enumerate a few of the best that flower through that season. The *Angræcums* furnish us with several good winter bloomers; they all last in good condition a long time

but are unfortunately rather expensive. *A. bilobum* blooms in November, and *A. eburneum virens* in December and January; but the grandest of all, for those who can afford it, is the beautiful *A. sesquipedale*, with its magnificent white flowers. *Barkeria Skinneri* is especially valuable, it flowers with the greatest freedom throughout the winter, and does well in an intermediate house. We have some nice plants of *Calanthe vestita* that I should not like to be without, for they produce a fine lot of flowers during the winter, and are moreover easy to grow, and valuable for choice bouquets; both varieties—pink-eyed and yellow-eyed—are good. The grand *Cattleya labiata* blooms in October and November, and therefore scarcely comes within the precincts of this paper, but its lovely flowers are produced at such a dull season that no orchid-house ought to be without it. Exactly the same remarks apply to the lovely *Vanda cœrulea*, with its large spikes of delicate blue flowers, which blooms at the same time as the *Cattleya*. For a white-flowered winter orchid nothing can equal the charming *Cœlogyne cristata*, which flowers in February and March: half-a-dozen specimens is not one too many in a collection. Two or three of the other species of *Cœlogyne* flower in the winter, but, in my opinion, none can equal *C. cristata*. The old *Cypripedium insigne* still maintains its place as a good useful subject, for it flowers freely throughout the winter; it can be grown well in a greenhouse, and lasts in perfection a long time. Another good mid-winter subject is *Dendrobium moniliforme*, the flowers are bright rosy lilac and white, and freely produced. The *Epidendrum vitellinum* is valuable for the winter, as its bright scarlet flowers quite light up the house when well done. The individual flowers of *Goodyera discolor* are not particularly remarkable, but large specimens well flowered have a pretty effect intermixed with the other plants. I grow several large pots for that purpose. Amongst the *Lælias* we have some grand winter flowers, *L. acuminata*, *L. albida*, and *L. anceps*, being about the best. They are all suitable for cutting, but I set too much store by mine to cut them. *Lycaste Skinneri* is also fine for winter, it is remarkably easy to grow, does well in a cool house, and the flowers remain good for a long time. In the *Oncidium*s we have *O. bicallosum*, *O. Cavendishii*, *O. leuochilum*, *O. unguiculatum*, all good and easy to grow. Forming a fine contrast to these, we must not forget the beautiful *Sophronites grandiflora*; its lovely scarlet flowers render it one of the most attractive I have yet named. The last plants that I shall name are the *Zygopetalums*; I could not possibly conclude with better subjects, for *Z. crinitum cœruleum* and *Z. Mackayi* are two of the most charming winter orchids we have.

There are several other good kinds (besides those I have enumerated) that flower in winter, but I have drawn these notes from my own collection, which enables me to speak with confidence.

SUGGESTIONS ON PRUNING FRUIT TREES.

BY M. J. VAN HULLE,

Head Gardener of the Botanic Garden of Ghent.



YOU most likely know already how fully convinced I am of the general superiority of what we call the rational system (*taille raisonnée*) of pruning fruit trees; my intention is to explain in a few words what we mean thereby, and further to submit this question to your consideration—whether you could not practise it in your country with the same success as we do in ours?

In England you have generally small fruit, but an abundant supply of it; you get it, however, more often by chance than by art. If the soil be stony, as in most places, either permeable or made so by drainage, you have, if not perfectly formed trees, at least beautiful ones, and loaded with fruit. But if the soil be damp, rich, and consequently the growth vigorous, scarcely any fine fruit can be obtained, if the trees are not treated according to their requirements. To be able to do this, it is necessary, in all cases, to consider, firstly, the form to be given to the tree; secondly, the different parts of which the tree is composed; and, thirdly, the functions which each of these parts has to fulfil.

It is by means of the leading or parent branches that the form of the tree is given. These forms may vary more or less, but should not be too complicated, but as simple as possible. The leading branches ought to be very straight, and instead of all spreading from the same point on the stem, or nearly so, a sufficient space should be left between each of them, the spaces being larger or smaller according to the nature of the tree. In all cases, the intervals between the leading branches should be as equal as possible.

If, in order to fill up the space, some of them are required to ramify or fork out, then it is with the lowest leading branches that the bifurcation is to be found; they must also be the strongest—symmetry must exist everywhere. Now, as we have observed, the leading branches give the form of the tree, but they bear another kind of wood, namely, the bearing branches which give the fruit-twigs, and often also the reserve fruit-twigs for the following year; so that in every tree to be pruned, whatever may be its form, only three or four kinds of branches exist. This being admitted, the task of the pruner is much simplified; indeed, knowing that each of these four parts has its own functions to perform, and may not, unless exceptionally, be charged with that of another part, it will be much easier to operate than if no proper distinction at all were made, as in most of systems of fruit-tree pruning.

Let us now see what are the functions of each of the above-mentioned branches, and how we can obtain the desired results; this is the essential point which the pruner ought to know and to observe. First, the leading branches must not give any fruit, but after having been strongly established by former short prunings, they must become longer every year, in proportion to the greater or less vigour of growth. They must bifurcate or fork out where necessary, as I have already explained, and give at the same time on their last year's wood the rudiments of the bearing branches of the following year, which, to be of good shape, should rather be too weak than too strong. If then the leading branches are left too long, the lowest eyes do not break, but they remain dormant, and leave the following year empty spaces. If they are cut too short, the bearing branches shoot out so vigorously that even by pinching them in summer and by leaving the leading shoot free, as is generally done, the growth cannot be stopped.

Such are the most important considerations with respect to the leading branches; along these the bearing branches ought to be placed at regular and convenient intervals, and be as short as possible, in order to prevent confusion, to admit the free action of sun and air, to take up less room, and also to produce and bear fruit better. All that remains to be done to accomplish this is to cut them the first year the length of two or three buds only, whether they have fruit-buds or not. Too often this capital point is neglected, and empty spaces are sooner or later the consequences of this error. Now on the bearing branches the fruit shoots exist single and isolated, and remain for several years, as in almost all "pepin" fruit trees (apples and pears); they should also be kept short by pinching, etc. In all cases these

operations should be done in proportion to the strength of the tree. But if the fruit shoots produce fruit for one year only, as in almost all stone-fruit trees, and if of course it is necessary to renew them every year, care should be taken that the fruiting or fruit-giving shoot itself, or still better another (a reserve fruit-twig) left on the same bearing branch, be destined to take the place of the former fruiting shoot which is cut off. Such are a few interesting points of the rational system followed in Belgium. As far as I have seen, both in your authors and in some of your gardens, this system is not much practised in England, except in the Horticultural Gardens at Chiswick, where at my last visit Mr. Thompson had begun to form some trees after the so-called new models.

A VISIT TO MESSRS. LUCOMBE, PINCE, AND CO.'S NURSERY, EXETER.

BY JOHN BURLEY, F.R.H.S., ETC.,

Albert Nursery, Pembridge Place, Bayswater, W.



N the middle of August last, I spent a few days exploring the county of Devon, and the southern parts in particular; from Exeter to Plymouth; thence up the Tamar to Tavistock; back again to Mount Edgecombe; and from there to Tamerton, and then up the Yealm River—calling at the principal places of interest in my way. Returned to Plymouth in time for the flower show held there; thence to Exeter, the streets of which I have not walked in for the last twenty years. There was plenty to see and admire in the old city, in the way of improvements. After wandering about the city, to the cathedral, and other places, I paid a visit to the Exeter Nursery, where I passed a few hours very pleasantly in viewing the beautiful collection of plants, both under glass and in the open ground, that are to be seen at this old-established place. I first paid a visit to the plants under glass. The first house I entered was the show-house, a long, handsome, span-roof structure, with a broad path down the centre, and a raised flat stage on each side. This contained a nice lot of *Lilium auratum*, and other lilies, capitally in flower; a few ericas, asters, veronicas, geraniums, also in flower. These, mixed up with a few palms and other foliage plants, gave the whole a fresh and gay appearance. I must not omit to mention that the roof was nicely covered with evergreen climbing plants, and most of them were in flower at the time of my visit. Especially must I mention a plant of *Tacsonia Van Volxemi*, covering a space not less than fifty or sixty square yards; and it had dozens of its beautiful blooms suspended with silk-like stems to a length of nearly two feet. I also noticed a new *Lapageria*, with a *scarlet flower*, the same being quite as large as the flower of *Lapageria rosea*. This will prove a very valuable acquisition to our greenhouse climbers.

On passing from this house to the stove and orchid-house, I noticed a beautiful collection of Achimenes and Gloxinias; the latter were remarkably fine and distinct, with rich, glowing colours, and the size of some of them enormous. I was told they were seedlings; if so, they will do credit to the firm when distributed. I here also saw that beautiful winter-blooming plant, *Gesnera Ezoniensis*. It would be only gilding refined gold for me to say more in its favour than has already been said about it; but this I can say, not one word that has been said in its praise is too good for it, for nothing can be more beautiful than its flowers, nothing can be more rich than its foliage. The coloured drawing of it (published by the firm) scarcely does it justice; for it would be impossible for any artist to give the deep shaded velvet to its leaves in a drawing, and it would be equally impossible to mix the glowing orange-scarlet of its blooms. It was, of course, nicely in bloom when I saw it, and it promised to continue so for months. It will, no doubt, prove to be one of the finest winter-flowering plants in cultivation. I also noticed, in this house, a fine lot of *Rhododendron jasminiflorum*, in full flower; also fine plants of *Allamanda Hendersonii*. This latter was in full flower, and had been so for some three months past; the flowers were borne in profusion on short pointed footstalks; the colour was rather more golden than the variety known as *A. Schottii*.

In the orchid-house the plants looked remarkably clean, and the growth well maturing. I noticed a nice collection of *Anætochilus*, in admirable condition.

There were about eight kinds, the most striking of which were *A. Lobbian* and *A. setaceus*, the stripes of gold being very conspicuous on the dark, velvet-like ground.

Of course, I paid a visit to the large camellia-house, and found the plants well set with bloom-buds; in fact, should but one-half only reach to the flowering stage, there would be enough, one would think, to supply all demands from Edinburgh to Plymouth. These camellias are immense bushes; and walking from end to end of the house is like walking through a wood.

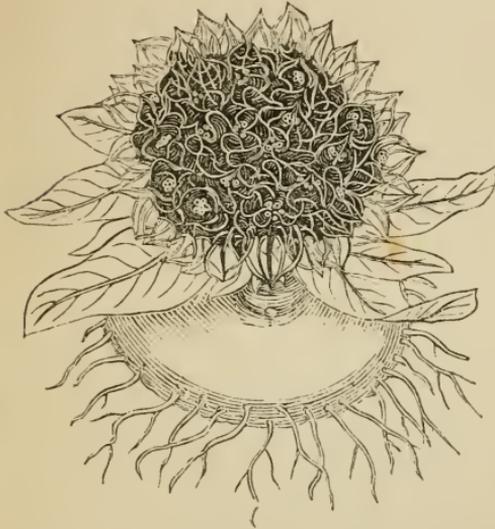
After leaving this house, I took a stroll through the extensive grounds. And here, let me remark, the greatest attractions of the nursery are to be found; for no one could form a correct idea of the beautiful specimen coniferous trees, and other shrubs, to be seen here, unless they personally visited them. And then, again, the quantity one sees of all kinds, and all superb specimens, has a profound effect on the mind of a critical lover of trees and shrubs. Of Irish yews, for instance, I may safely say there were hundreds, from twelve to sixteen feet high, feathered to the ground, and perfect pyramids; and the quantity under this size was immense. The specimen Wellingtonias, also, were a sight to see. There were two superb specimens over thirty feet high, with branches sweeping the ground to a circumference of twenty yards. I also noticed a fine plant of *Larix Kämpferi*, one of the most elegant of the larches, over twelve feet in height; also a *Golden cedar*. This was very striking amongst other plants. The bright yellow had a most charming effect blended with the light lively green. There was also a fine specimen of *Pinus Gordoniana*, over twenty feet high. This is a beautiful pine. The bold outline and erect habit make it very conspicuous, especially when planted on a broad expanse of lawn. I noticed some standard Portugal laurels in the Italian garden, in tubs. These had fine handsome heads, and, placed as they were among the statuary, they had a most noble effect. There was also planted here some noble yews; and dotted here and there in pairs, as they should be in an Italian garden, they had a most beautiful appearance, their solemn columnar outlines so well befitting the scene. Near here, also, stood a fine pair of the Ford Oak, *Quercus Fordii*, a fine evergreen tree, with growth as compact as a Phillyrea; they were quite twenty-five feet high, and sixteen yards around. This is the best of the evergreen oaks. In my walk to the rockery, I noticed some fine *Araucaria imbricata*, splendid specimens. There was one noble plant of this species that appeared quite distinct from the others; the growth was much more dense and compact, the branches all over much shorter jointed than usual, and the colour appeared to me to be much a lighter green. I am not aware if this plant has always retained this character, but as it is, it is very striking, owing to the tree being so close and compact in its growth. I noticed a fine broad-leaved *Weeping Box* in the rockery, with foliage more like a broad-leaved myrtle than a box. This, I was told, was a very scarce kind—at any rate, I never saw it before—which drew my attention to it at once. There were also planted about in the rockwork some of our choicest variegated plants from Japan. They looked well, and appeared quite at home.

I next visited the grapery, to have a peep at the new grape, *Mrs. Pince's Black Muscat*. There was a wonderful crop on the original vine, the bunches hung as thick as possible—in fact, there would have been a difficulty to have placed one's hand in anywhere without touching a bunch of grapes—and such bunches, too! Of course, they were just on the turn to colour when I saw them, but not many bunches were less than ten inches long; and if there had been room to tie out the shoulders, they would measure quite as much across. I must, in justice, also say, that there was plenty of air admitted to the house; in fact, every top-light was pulled down more than a foot; so that says a great deal for its hardness. This grape has a true Muscat flavour, and has already become famous for its long-keeping qualities. Near the entrance-gate, as I was leaving the place, I noticed the finest specimen of the Lucombe Oak in England. I was told it was one of the original trees introduced by a member of this firm, more than a century ago. It was a glorious tree, and of an enormous size. I will conclude this notice with informing all lovers of foliage plants that I here saw in full flower a plant of *Dasyrium filiforme*, with a stem ten feet long; the colour of the bloom was a light yellow, and the laterals of the flower-stems resembled bunches of dried corn. Although destitute of the beauty resulting from bright colour, the inflorescence was full of grace and beauty, resembling a gigantic flower-spike of the well-known *Humea elegans*.

NEW PLANTS.



BRACHYSTEMMA BARBERIÆ (*Bot. Mag.*, t. 5607).—Asclepidææ. This plant was noticed in the FLORAL WORLD in 1866. But on account of its peculiar and interesting character, we notice it again, in order to introduce a figure. The genus *Brachystelma* is a large one peculiar to South Africa. The species grow in dry places, and form tuberous roots, that are eaten by the natives. The root is as large as a turnip, the flowers are collected in a dense globose head of a dingy purple colour. This plant is of no value



BRACHYSTEMMA BARBERIÆ.



MESOPINIDIUM SANGUINEUM.

to the cultivator, but as one of the curiosities of the vegetable kingdom, merits, we hope, this brief notice and figure.

MESOPINIDIUM SANGUINEUM (*Bot. Mag.*, t. 5627).—Orchidææ. A pretty epiphyte, with ligulate leaves and nodding racemes of rosy-pink flowers.

AGAVE DASYLIRIODES, *Dasylyrion-like Agave* (*Gard. Mag.*, 1868, p. 115; *Bot. Mag.*, t. 5716).—Amaryllidææ. A noble *Agave*, native of Mexico, which has flowered three times in the conservatory at Regent's Park. The leaves are three and a-half to four feet long, narrow ensiform, the outer ones recurved; the flower-stem ten feet high, pendulous, the lower half crowded with bracts, the upper half crowded with green flowers.

ABUTILON VEXILLARIUM, *Standard-flowered Abutilon* (*Bot. Mag.*, t. 5717).—Malvaceæ. An elegant warm greenhouse plant, with dark green leaves and bell-shaped flowers, which have sulphur-coloured corollas and red calyces: when in flower extremely graceful and attractive.

NASONIA PUNCTATA, *Cinnabar-red Nasonia* (*Bot. Mag.*, t. 5718).—Orchidææ. A pretty little orchid from Peru, the flowers of which are of a fine cinnabar-red colour.

PÆONIA EMODI, *Himalayan Peony* (*Bot. Mag.*, t. 5719).—A distinct, slender-habited, and rather tender herbaceous peony, with large white flowers.

PHARBITIS NIL VAR. LIMBATA, *White-edged Pharbitis* (*Bot. Mag.*, t. 5720).—Convolvulaceæ. A white-edged variety of a well-known stove annual. It is extremely beautiful.

HORTICULTURAL AFFAIRS.



EXHIBITIONS OF CHRYSANTHEMUMS.—The number of exhibitions held during the past month, affords a fair and conclusive proof that the popularity of this invaluable autumnal flower is by no means on the wane, but rather on the increase. The exhibitions held at the nurseries of Mr. **SALTER**, **HAMMERSMITH**, and Mr. **FORSYTH**, **STOKE NEWINGTON**, have been quite equal to those of former years. The **STOKE NEWINGTON SOCIETY** has held two shows this year, one in the **Luxembourg Hall**, **Dalston**, and the other in the **New Assembly Rooms**, **Church Street**. At both the plants and cut blooms were first-rate in quality, and the quantity of the latter was simply enormous. At the last-mentioned show we noticed a fine collection of ornamental foliage plants, and at both, fine collections of fruit were exhibited by Mr. **R. James**, **Stoke Newington**, adding much to the interest and beauty of the exhibitions. The **BRIXTON HILL SOCIETY** directly encourage the exhibition of fruit by offering prizes for it, and also for collections of fine foliage plants, thus adding to the attractions of exhibition, and breaking up the monotonous appearance which chrysanthemums alone present. The **Brixton Hill** show was remarkable for the fine large plants exhibited, and the taste displayed in the arrangement. The culture of plants has attained to a high degree of excellence in **Essex**, as was evinced by the grand specimens contributed to the exhibition held by the **SOUTH ESSEX CHRYSANTHEMUM SOCIETY**, at **Stratford**. The great bulk of the plants were grown to an immense size, and the finish was such as to leave nothing to be desired. The **BRISTOL AND WEST OF ENGLAND CHRYSANTHEMUM SOCIETY** has held a meeting at **Clifton**. This was in every sense a great success. The specimen plants and cut blooms were all that could be desired or expected, and as this society wisely encourage fruit and fine foliage plants, the exhibition was as remarkable for the beauty of the display as it was for the high excellence of the subjects exhibited. The grand exhibition of chrysanthemums and other subjects, held at **LIVERPOOL** on the 25th and 26th ult., yielded to none held this season, in any one respect, showing that the horticulturists of that neighbourhood are as keenly alive to the beauty and usefulness of the chrysanthemum as their brethren round the metropolis. The **NORTH-WESTERN**, **EAST LONDON**, and **SOUTH LONDON AMATEUR SOCIETIES** have held exhibitions that have been in every way a credit and honour to every one connected with their getting up.

It would take up more space than we can afford to report all the shows fully, we shall therefore only give the names of the varieties which were most generally exhibited as specimen plants, and as cut blooms.

The favourite *large-flowering varieties for specimen culture* were: **Dr. Sharp**, **White**, **Pink** and **Golden Christine**, **Mrs. George Rundle**, **Prince of Wales**, **Annie Salter**, **Prince Albert**, **White** and **Golden Beverley**, **Vesta**, **Defiance**, **Lady Harding**, **Bronze Jardin de Plantes**, **Golden Trilby**, **Dr. Brock**, **Little Harry**, **Lady Slade**. *Pompones for specimens*: **Golden**, **White**, **Lilac**, and **Brown Cedo Nulli**, **St. Thais**, **Salamon**, **Andromeda**, **Aurora Borealis**, **Fanny**, **General Canrobert**, **Bijou d'Horticulture**, **White Trevenna**, **Calliopé**, **Duruslet**, **Sidonie**, **Bob**, **Antonius**, **Brilliant**, **Helena**. *Large-flowering varieties for cut blooms, incurved*: **Mrs. Halliburton**, **Mrs. Sharp**, **White Globe**, **Empress Eugénie**, **Gloria Mundi**, **Lady Slade**, **Lady Harding**, **Aimée Ferrière**, **Queen of England**, **Prince of Wales**, **John Salter**, **Formosa lutea**, **Jardin de Plantes**, **Princess of Wales**, **Nil Desperandum**, **Beauty**, **Maréchal Duroc**, **Formosa alba**, **Empress of India**, **Yellow Perfection** **Oliver Cromwell**, **Prince Alfred**, **Venus**, **Aurea Multiflora**, **Le Grand**, **Mrs. Heale**, **Eve**, **Golden Beverley**, **Guernsey Nugget**, **General Slade**, **Cherub**, **Mrs. G. Rundle**, **Prince of Wales**, **Themis**, **Mr. Gladstone**, **Fingal**, **Bella Donna**, **General Bainbridge**, **Hercules**, **Cassandra**, **Rifleman**. *Large-flowering varieties, reflexed*: **Christine**, **Sir E. Landseer**, **Prince Albert**, **White Christine**, **Sabina**, **Lord Clyde**, **Alma**, **Beaute du Nord**, **Cardinal Wiseman**, **Attraction**, **Madame Poggi**, **Chevalier Domage**, **Golden Christine**, **Cloth of Gold**, **Annie Salter**, **Garibaldi**. *Large Anemone flowers*: **Gluck**, **George Sand**, **Empress**, **Lady Margaret**, **Louis Bonamy**, **Prince of Anemones**, **Fleur de Marie**, **Marguerite of York**, **Nancy de Sermet**, **Madame Goderau**, **King of Anemones**, **Margaret of Anjou**, **Rose Margaret**, **Miss Peters**. *Anemone flowered Pompones*: **Firefly**, **Mrs. Wyness**, **Mr. Astie**, **Antonius**, **Calliopé**, **Margaret Wildemar**, **Sidonie**, **Madame Montel**, **President Morel**, **Miss Nightingale**, **Stella**, **Regulus**, **Perle**, **Queen of Anemones**, **Madame Chalonge**.

GARDEN GUIDE FOR DECEMBER.

THE weather of the past month was so favourable for outdoor work that there could be no excuse for neglect of anything requiring to be done, so far at least as the state of air and earth were concerned. The newspapers have teemed with paragraphs prognostic of a severe winter, but the principal argument of the weather prophets—that founded on the present abundance of berries—is so absurd that no reflective person will give serious heed to them for a moment. But for all that it is our duty to be prepared for the worst, and whatever protection is likely to be needed for choice plants, should be prepared at once. Very much may be done, as we have frequently shown, by means of reed hurdles and screens of cheap net or coarse canvas, to screen from the severest frost such things as Japanese shrubs, yuccas, and other nearly hardy plants, the principal beauty of which consists in their foliage. There is not much work going on now in any department, but winter flowers and forced vegetables must have attention, and it would be well in the long evenings to make out lists of seeds and roots that will soon be wanted, and order them, for when the rush of the season occurs, seed orders are long delayed, and oftentimes the best weather for sowing them is lost. This is not a good time to plant evergreens, but deciduous trees of all kinds may be planted, and the sooner the better. Those who are inquiring after cordon apple-trees may be referred to Messrs. Rollison and Son, of Tooting, who have taken a leaf out of the French practice, and have a fine stock of single and double cordons.

TO CORRESPONDENTS.

LOCUST BEAN.—*L. Tatham*.—There are several trees of the Fabaceous, or bean-producing, family of plants that are called "locusts." The one which produces the large brown sweetish pods, employed here as cattle food, is named *Ceratonía siliqua*, the horn-podded locust, or carob-tree. It grows plentifully throughout the rocky districts of Arabia, Syria, Greece, Northern Africa, and the south coasts and islands of the Mediterranean. It is evergreen, with dark, shining leaves; the flowers are red and yellow, they emit a powerful and obnoxious perfume; the pods which follow them occur in clusters, and average four to six inches in length; they are intolerably astringent when green, but become peculiarly sweet and dry-textured as they ripen, and when fit for use are of a fine dark brown colour. It is eaten with avidity by all kinds of cattle: but in the East it is always mixed with chopped clover and straw for horses and kine, for, if they eat much of it alone, they suffer in health. It is only in times of scarcity that the carob bean is used as an article of human food, except in the case of those who have acquired a taste for it, and eat it as an amusement. When necessity compels its general adoption, it is invariably baked, and forms a dish that is simply tolerated, rarely enjoyed. A very excellent syrup is prepared from the ripe pods, which is administered in cases of catarrh, and, in fact, in almost all afflictions of the chest, with great benefit to the patient. The carob of commerce is commonly regarded as the "Locust" of St. John in the wilderness. The natural habit of the tree favours this belief as much as the suitability of its fruit for the sustenance of an anchorite. The "wilderness" is emphatically its home; it is seldom seen in sheltered, fruitful valleys, but it haunts the rocks and mountain sides, and sends its roots far and deep amongst the clefts of the precipice in search of nutriment, where its dense, dark green head is oftentimes the only example of verdure visible. It is one of the most interesting of all the trees met with in the desert, because of its lonely habit, its hardy nature, its rugged appearance, and its peculiar usefulness, as affording food to man and beast. In Matt. iii. 4 we read of John, that "his meat was locusts and wild honey" (of the country). In the Greek text, the expression, "akrides kai mele agron," in common with the Latin, "locustæ et mel agreste," implies rather the animal than the vegetable locust: the "locusta" of Pliny and Livy being either one of the grasshopper or one of the lobster tribe. We have not found in any great writer, such as Dioscorides, for example, any allusion to the locust as a production of the vegetable kingdom; and as the well-known animal bearing that name is much more sought after in the East as an article of human diet than the bean of the carob, we

are compelled to say that the theory held by Lindley, and others, of the identity of the locust bean with the "akris" of Matt. iii. 4 rests more upon conjecture than on philological evidence. The descendants of Jacob had learned to eat the winged locust in the desert, and this food was sanctioned by the Mosaic code—"Ye may eat the locust after his kind, and the bald locust after his kind, and the beetle after his kind, and the grasshopper after his kind" (Lev. xi. 22). To suppose any vegetable aliment to be intended here would be absurd. If conjecture were to be freely indulged in, it might be suggested that if the locust of John was a flying insect, appreciated to this day as an article of food, the wild honey might at least have been the carob bean. But such a conjecture is, upon the face of it, worthless, because the text always directs us to the product of bees unowned, as David says in Psalm lxxxi. 16, "He should have fed them also with the finest of the wheat: and with *honey out of the rock* should I have satisfied thee." There is just another view of the case that has not occurred to the critics. It is probably not intended by the evangelist to describe the Baptist's food with scientific accuracy, or with even the precision of a modern bill of fare, though something of the kind is looked for in the text by the scholastic hair-splitters and exegetical dumbfounders. We may possibly obtain a clue to the exact purport of the words by the analogous case of Matt. vi. 28, "Consider the lilies how they grow." In this we are directed to observe the perfections of the works of God; and to search for any particular species of lily as the one which the Saviour may have referred to, is to put common sense under foot, and degrade all learning to the level of superstition. Why may we not, in like manner, understand by "locusts and wild honey," that the Baptist subsisted on whatever the desert afforded him, whether locusts proper, or honey from the rock, or *whatever else*? His portrait is drawn in a brief but graphic sketch, comprised in the first four verses of Matt. iii., and we are not to receive in the sense of a broker's inventory the description of his attire, "camel's hair and a leathern girdle," or as a "carte" of a modern feast the description of his food. But we are to understand that he despised soft raiment, and avoided kings' houses; that he renounced the refinements of settled society, and loved the ascetic life, because of the peculiar earnestness of his nature, and the awful magnitude of his mission. The carob-tree is very nearly hardy in this country; but as we have never seen it growing in the open air, we cannot say if it may be planted out with safety. When met with under cultivation, it is as a greenhouse tree; and as it is quite destitute of beauty, and emits an unpleasant odour when in flower, we do not consider it worthy of cultivation at all, save and except as a curiosity. Another "locust" tree is the *Hymenæ* of Madagascar and West Indies, three species of which have been grown in this country. They are all evergreen stove trees. Yet another "locust" is the *Robinia pseudacacia*, a North American forest tree, once made famous by William Cobbett, who so overrated its merits as a timber tree, that his advocacy of its cultivation proved to be the greatest mistake of a life strangely chequered by successes and blunders. The Robinia is undoubtedly a capital tree for a gate-post, or for any kind of rustic furniture, but it is far more valuable as an ornamental tree, and one of the very best of that class ever planted in a garden. One of the finest specimens in England, probably, is one at Stoke Newington, the now leafless branches of which almost touch the windows of the room in which this note is written. It is a tree of noble stature, branching freely and gracefully, producing a rich light-green leafage and an abundance of racemes of white flowers, which the bees are extremely fond of. We have several other species and varieties of Robinia, which are of great service to the landscape gardener. Of these, we may particularize as especially valuable the "Rose acacia," *Robinia hispida rosea*, a number of which are planted on the second terrace, in connection with the famous "ribbon line" of flower-beds, at the Crystal Palace. Of the common Robinia, one of the most beautiful varieties is the one lately obtained from a sportive branch in a French garden, and which produces rose-coloured flowers.

SUB-TROPICALS.—J. S. S.—By the aid of a hot-bed in January, a number of fine things may be raised from seed. March or April will do for the first sowing of castor oil plants, as they grow very fast. The following are a few of the best varieties in the several classes named, which may all be raised from seed. We make a short list, under the impression that it will be more useful than a long one. *Cannas*: *Annei, *Musæfoliæ, *limbata (this is the one that has stood out winter and summer several years past at Battersea Park), floribunda, nigrescens, metallica. *Solanums*: giganteum, *auriculatum, *marginatum, anazonicum, *robustum.

Nicotiana: *Virginiana, *Wigandioides glauca, Havanensis, Marylandica. *Ricinus*: *borbonensis, *compactus, *macrophylla atropurpurea, pulcherrima, sanguinea, glaucus. The following plants are also invaluable, and may be raised from seed with very little trouble: Striped-leaved Maize, *Bocconia rotundifolia*, *Chamæpodea diacantha*, *Cineraria maritima*, *Ferula communis*, *Gunnera Scabra*, *Wigandia caracasana*.

BERBERIS TOLUACENSIS.—Can you tell me anything about the enclosed cutting of a berberis. Messrs. Henderson sent the plant to me last year, under the name of *B. Toluacensis*, but could give me no information as to its native country, etc. It is a very handsome shrub of free growth, but has not as yet flowered with me. The leaflets somewhat resemble *B. fascicularis*, but are of a more flimsy texture, less scalloped, and much longer, and the shoots are thrown up in long rods from the roots, and not bundled like those of *B. fascicularis*. From the nature of the leaflets I fear it is not hardy, and therefore keep it in a greenhouse. The name leads me to suspect that it may be of South American origin.—*J. J.* [This is a beautiful species, nearly allied to *B. Nepalensis* in constitution and habit. It is a native of South America, and decidedly tender; therefore must have greenhouse cultivation during winter.]

CORDON APPLE TREES.—*M. F.* is very anxious to try Cordon training, as described by Mr. Robinson, and would wish to know if the trees on the right stock are to be had in England, or Ireland, and where? Also, will he or Editor give names of best twelve apples for dessert for Cordons, in next FLORAL WORLD? The soil of her garden is moderately light, on limestone subsoil; stands high, sloping to the south, and fairly sheltered. Mild climate. In south-west of Ireland. [We are not prepared to advise *M. F.* where to seek for suitable trees, but we can advise on the kind of trees required. They should be grafted low on paradise stocks, and if with three years' growth and training, all the better. The following twelve are the sorts we should prefer before all others in your climate:—White Calville, Reinette du Canada, Cornish Gilliflower, Court of Wick, Golden Pippin, King of the Pippins, Melon, Newtown Pippin, Scarlet Nonpareil, Northern Spy, Irish Peach, Claygate Pearmain.]

HYACINTHS, ETC.—*C. H.*—Yes, give all bulbs in pots plenty of water, but do not keep them soaking in pans of water. You must not keep them in the dark after they once begin to grow fairly. Probably sea-weeds and marine animals may be obtained of Mr. King, from 21, Portland Road, Regent's Park, London.

CAMELLIAS.—*A. B. S.*—Your camellias were too dry for some time in the summer, and they ripened their wood prematurely in consequence. It is scarcely possible to do anything now to improve them. We should leave them alone, but if you are anxious to stop the growth, the only way will be to transfer them to a cooler house. It is not usual for castor oil plants to produce good seed in English gardens, but it has occurred very generally this year.

C. A.—Patent Concrete Stone Company, East Greenwich.

JAPANESE CHRYSANTHEMUMS.—*Subscriber.*—These are very handsome, and as easily managed as the rest. They are not in high favour, however, with chrysanthemum growers, because they lack the peculiar qualities of form for which the incurved flowers are so highly prized. If you can endure to see beautiful flowers that refuse to shape themselves according to the "properties" required by the books, by all means obtain a set of Japanese Chrysanthemums, and cultivate them in precisely the same manner as the large show varieties. The best half-dozen are *The Daimia*, *The Tycoon*, *Tarantula*, *Grand Turk*, *Comet*, and *Red Dragon*. These bloom at the same time as the other varieties. They are, perhaps, too large for supplying cut flowers; yet when cut they are noble objects.

Blitz.—The subject you inquire about shall have our best attention shortly. We have seen flowers of Chinese primulas measure two inches in diameter.

G. S. J.—Charcoal is useful to mix with any soil for plants, but it is no substitute for manure for potted fruit trees.

HINKS'S PETROLEUM STOVE.—*Lady H. B.*, and others.—We are agreeably surprised at the safety, effectiveness, and great convenience of this stove for the protection of small plant-houses against frost, and for warming halls, bedrooms, offices, and other places where a portable heating apparatus is required. It is a neat and elegant affair, resembling a table tea-urn, and in fact might be used as

such, for a boiler is one of its main features. It may be described as resembling a Belmontine lamp in principle action, but it is constructed of tin instead of glass, and the boiler surrounds the upper part of the chimney. Whoever can manage a paraffin or Belmontine lamp—an easy matter enough—can manage one of these stoves, for the flame is produced by means of a wick, or rather a double wick, immersed in rock oil or paraffin, in precisely the same manner as in the common reading lamps now so generally used. There is no unpleasant odour produced; not a particle of sulphur results from the combustion; and there is, for the size of the affair, a very large radiating surface, of which the boiler is an important part. All coke and charcoal stoves, if burned within a plant-house, give off sulphur fumes, for there is sulphur in the fuel; these stoves cannot produce so undesirable a result, as petroleum is totally destitute of sulphur. Proper management is, of course, an important matter, but plain directions are sent out with the stoves, and there is nothing required of the operator but what ordinary care in the management of a lamp can accomplish.

VARIOUS.—*King-street, Yarmouth*.—Both subjects next month. Leave the plants alone for the present, but keep them in the stove.—*A. B. S.*—We advise you to follow your gas-man's plan, even if a few yards of the creepers on the roof are injured it is not much matter, as they will soon grow again. While the gas is burning give as much air as possible, consistent with the comfort of your guests. The *Lomatia* would do out of doors all summer, and in your climate it *might* stand the winter, but it is a risk. Get rid of it, and try for the same purpose *Jacaranda filicifolia*.—*W. F. F., Salford*.—Cut away about half the rod only, and take care you do not allow it to bear all the fruit it shows. Never mind the worms in the border; they will disappear in time.

HEIGHT IN ENGLAND OF *ARAUCARIA IMBRICATA*.—*A Subscriber* is anxious to know the greatest height that the *Araucaria* has attained in England, and the circumference of trunk at the base, with the average yearly growth. Are the finest specimens to be seen at the Bicton Gardens? Perhaps some of the readers of the *FLORAL WORLD* would kindly answer these questions.

NEW BOOKS.

GEMS OF NATURE AND ART. Groombridge and Sons.—This is a drawing-room table book, appropriate to the season when elegant gift-books are in request. Its attractions consist of a series of about thirty coloured plates of birds, flowers, insects, shells, antique curiosities, and bits of scenery, accompanied by descriptions; the whole inclosed in a gorgeous binding. Whatever may be its literary merits—and as a matter of course no one will criticise the text as they would a new poem or an original history—there can be no question about the perfection of the pictures, which are truly wonderful as examples of colour-printing. Nor as to the text, is there any room for complaint, for not only are the descriptions truthful and elegant in style, but they comprise notes and observations from such writers as Lord, Humphreys, Gosse, Hibberd, Tegetmeier, the Hon. Mary Ward, Darwin, and others of equal repute, and a certain light touch of editorial grace gives harmony and relationship to the whole. We can recommend this sumptuous gift-book as abundantly worth the guinea charged for it.

CLEVER DOGS AND HORSES, WITH ANECDOTES OF OTHER ANIMALS. *By Shirley Hibberd*. Partridge and Co.—A small quarto volume, full of stories and pictures illustrative of the intelligent and individual characters of various animals. Very many of the stories are original, and the result of the author's observation and experience; others are selected from trustworthy authorities. The pictures comprise reproductions from paintings and sketches of Landseer, Rosa Bonheur, Collins, Harrison Weir, and other of the leading artists who have best succeeded in portraying the characters of animals.

THE GARDEN ORACLE FOR 1869 (Price 1s.) is now ready. It contains a new arrangement of tables of land measures, draining, manuring, etc., etc.; Twelve separate selections of the finest stove and greenhouse flowering and fine foliage plants, both for home decoration and for exhibition; Descriptions of all the New Plants, Flowers, and Fruits of the Year; and Selections for 1869 of the best florists' flowers in all the classes. This is the eleventh issue of the *ORACLE*, which increases in popularity every year.

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