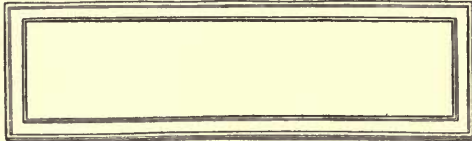
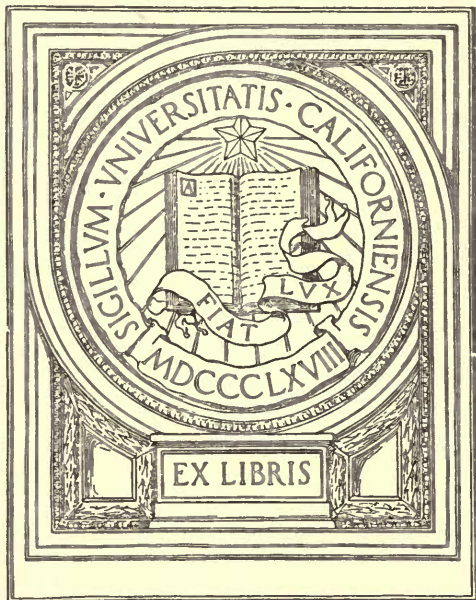


BEAUTIFUL  
FLOWERS  
AND HOW TO  
CROW THEM

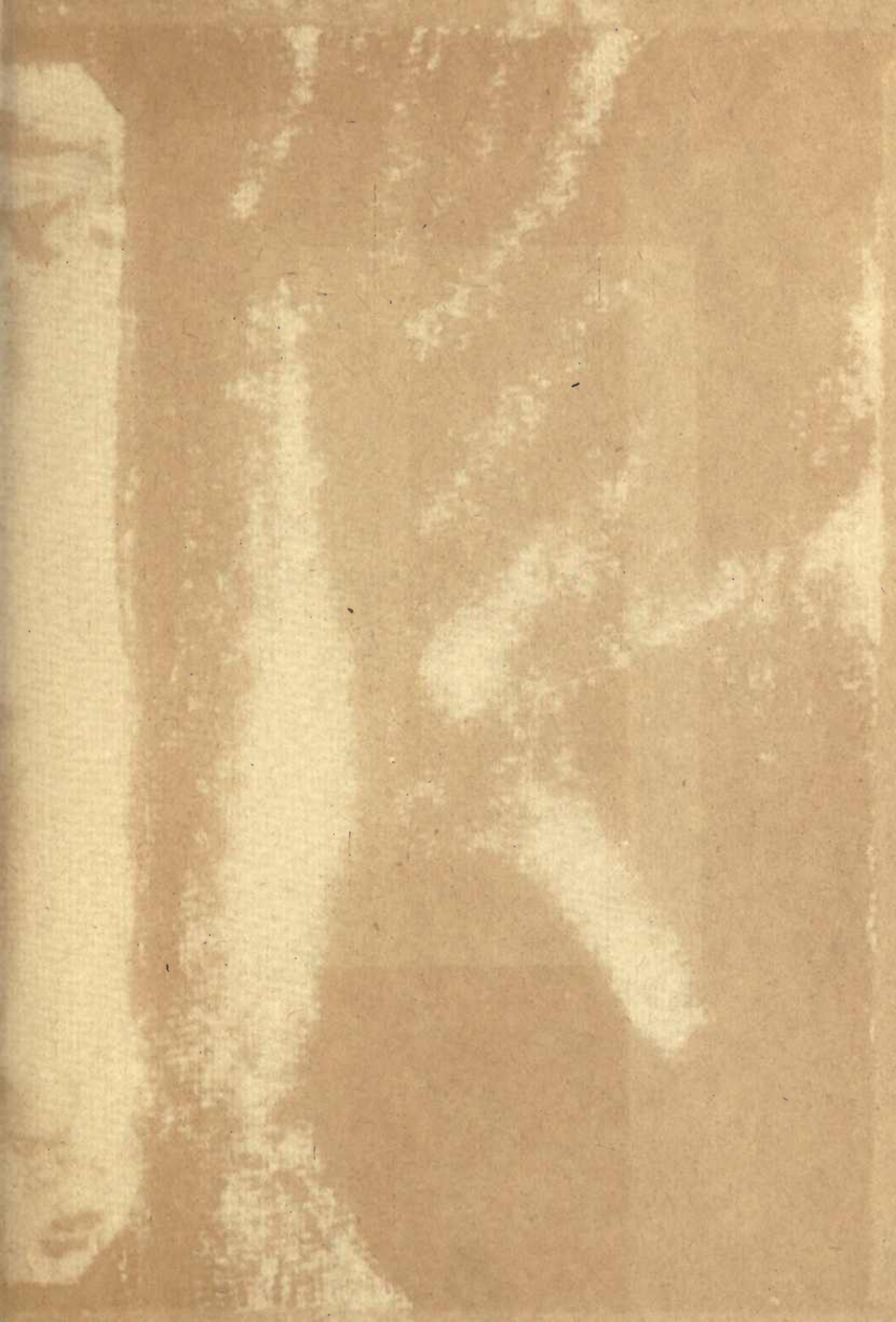




GIFT OF  
A. F. Morrison













BEAUTIFUL FLOWERS  
AND HOW TO GROW THEM



REAR VIEW OF COVER  
OF THE BOOK









ANTIRRHINUMS (SNAPDRAGONS)  
By E. Fortescue Brickdale



# BEAUTIFUL FLOWERS

## AND HOW TO GROW THEM

BY

HORACE J. WRIGHT & WALTER P. WRIGHT

ILLUSTRATED WITH 32 PLATES IN FULL COLOURS FROM PAINTINGS  
BY BEATRICE PARSONS, ELEANOR FORTESQUE BRICKDALE,  
HUGH L. NORRIS, MARGARET WATERFIELD,  
A. FAIRFAX MUCKLEY, FRANCIS G. JAMES,  
ANNA LEA-MERRITT, AND MARIE LOW



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GIFT OF  
*A. F. Morrison*



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TEA ROSE  
By Hugh L. Norris

# BEAUTIFUL FLOWERS

## ROSES

THERE is a charm about a beautiful Rose garden which appeals irresistibly to every lover of flowers. It is not necessary to win a prize at a Rose show to enjoy Roses when they are used in free, informal, natural ways. There is a wide gulf between exhibiting and gardening. The exhibitor of Roses does not keep beautiful garden effects constantly before him, and plant and prune in such a way as to form pleasing garden pictures; he aims at producing a limited number of flowers of a particular type. For this reason people who love Roses must not allow themselves to be unduly influenced by what they see and hear at shows. They must learn about beautiful garden Roses—what they are, and how to manage them in order to get lovely garden scenes, together with abundance of flowers for bowls and vases.

There should be nothing stiff, stilted, and formal about Roses, whether in the growing of them, the utilisation of them, or the writing about them. We should look upon them as cheerful, delightful, affectionate companions. To put the trees in stiff rows, grow them on a level, and prune them back to mere stumps, like a blackthorn hedge, is to rob them of all chance of showing whether they possess natural beauty. And to write of Roses as though they were mere automata, devoid of all sentiment, of all power of appeal to our finest feelings, is to put them on the same plane as mangold wurzels.

Beauty creates beauty. Who can look on a picture of a beautiful



garden without feeling an impulse to grow flowers—not merely to put them into the ground, but to arrange them in such a way that they form harmonies of form and colour? That impulse comes to the meanest of human beings, and it proves two things: the first, that poor, wayward humanity is capable of being swayed by emotions which make for peace and beauty; the second, that flowers have the power of awakening those dormant feelings. A garden, then, becomes more than a mere minister to the grosser appetites. It is not simply an instrument of pleasure.

The Rose of our love is not the Rose of the show tent, but of the flower-bed, arch, pillar, and pergola. It is the Rose that swings golden, and pink, and crimson clusters lightly in the summer breezes. It is the Rose of the *Rubáiyát* of Omar Khayyam:

“Look to the Rose that blows about us, Lo,  
Laughing, she says, into the world I blow:  
At once the silken tassel of my purse  
Tear, and its Treasure on the garden throw.”

It is the Rose of Shakespeare (Henry VI.):

“Then will I raise aloft the milk-white Rose  
With whose sweet smell the air shall be perfumed.”

It is the Rose of Dunbar, the Scottish poet, who wrote, long years before Shakespeare was born:

“Nor hold none other flower in sic dainty  
As the fresh Rose of colour red and white;  
For if thou dost, hurt is thine honesty,  
Considering that no flower is so perfite,  
So full of virtue, pleasaunce, and delight,  
So full of blissful, angelic beauty,  
Imperial birth, honour and dignity.”

We will learn a little about the most beautiful types of Roses, and further, how to use them in the ways that Nature teaches.

We read of Perpetual Roses, Tea Roses, Hybrid Tea Roses, Damask Roses, China Roses, Moss Roses, and Monthly Roses.

But even these are not all, for we find a reference to the Austrian brier, the Japanese Rose, the Provence Rose, the Macartney Rose, the Ayrshire Rose, and the Evergreen Rose. Then we come to others more forbidding, because botanical—*Rosa multiflora*, *Rosa Wichuraiana*, and so forth.

There are folk who like to know something of the different classes, and particularly of the Roses of great poets such as Shakespeare. The Red Rose of the Bard, and his Provençal Rose, are supposed to be the same, our Cabbage Rose (*Rosa centifolia* of botanists).

His White Rose is supposed to have been a double form of the wild white Rose (*Rosa arvensis*).

Warwick's prophecy in connection with the scene in the Temple gardens, where the flowers were plucked as party badges, was fulfilled:

"This brawl to-day  
Grown to this faction, in the Temple garden,  
Shall send, between the Red Rose and the White,  
A thousand souls to death and deadly night."

Sir John Mandeville's description of Damascus: "Non other cytee is not lycke in comparison to it, of fayre Gardens, and of fayre desportes," prepares us for the assurance that Shakespeare's Damask Rose (*Rosa Damascena*) came from Damascus. We may well view this Rose with double favour, for it undoubtedly served as one of the several parents of the greatest of all modern classes of Rose—the Hybrid Perpetual.

The Musk Rose of Shakespeare is, of course, *Rosa moschata*, which Hakluyt tells us in his *Voiages* was "procured out of Italy," but is not confined to that country, as it has been found native on the opposite side of the Mediterranean. The reader will recall Bacon's glowing praise of this old flower: "That which above all others yields the sweetest smell in the air is the Violet, next to that is the Musk Rose."



The parti-coloured Rose which Shakespeare had in mind when he wrote in the Sonnets :

“The Roses fearfully in thorns did stand,  
One blushing shame, another white despair;  
A third nor red nor white, had stol'n of both  
And to his robbery had annexed thy breath,”

must have been the York and Lancaster Rose, which most authorities consider to be a variety of the Damask Rose, although the Gloria Mundi Rose, which is also commonly grown under the name of York and Lancaster, is a variety of *Rosa Gallica*.

Shakespeare's eglantine is the Sweet Brier (*Rosa rubiginosa*). If he had lived to-day he would have loved the exquisite hybrid Briars raised by the late Lord Penzance.

So much for the Shakespearean garland of beautiful Roses, and now a word as to the various sections. The largest class is the Hybrid Perpetual. Several species have been used as parents for these, notably the China or Monthly (*Rosa indica*), the Bourbon (*Rosa indica borbonica*), and the Damask (*Rosa Damascena*). The term perpetual is used in connection with them because they bloom twice or more in the year.

The next largest is the Tea, so called because the perfume of the flowers resembles that of the “cup that cheers but not inebriates.” They also spring from a form of the China Rose (*Rosa indica odorata*).

The third largest class is the Hybrid Tea, and it has grown rapidly during recent years. The varieties are cross-breeds, probably between Hybrid Perpetuals and Teas.

The Noisettes are not so numerous as the three foregoing classes, but the section is important, because it includes several beautiful climbing Roses which bear their flowers in clusters, notably Maréchal Niel, William Allen Richardson, L'Idéal, and Alister Stella Gray. The origin of the class must be sought in hybridisation between the China and the Musk Roses.

The Moss Rose is a small but interesting section, derived from a form of the Cabbage Rose (*Rosa centifolia muscosa*).

Of the remaining classes the most important is the Polyantha Rose, which springs from *Rosa multiflora* ("many-flowered"). It grew rapidly in numbers and value during the closing years of the last century, and in view of the fact that it embraces the great Crimson Rambler and its sister varieties, as well as the brilliant Leuchstern, it is questionable whether it is not at least as valuable for garden decoration as the numerically stronger Hybrid Perpetuals and Teas. The Polyantha Roses have special value for the formation of charming garden pictures, as they are so suitable for arches and pillars.

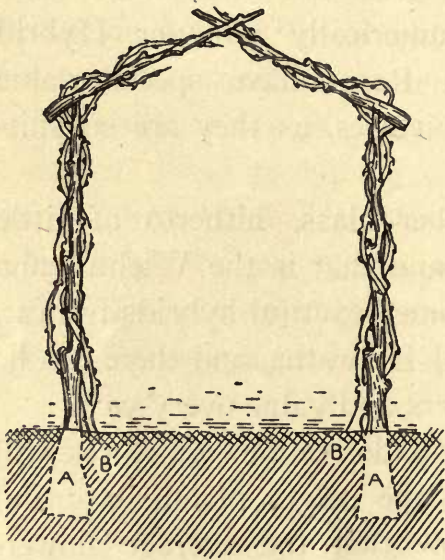
By the same token there is another class, hitherto of little note, which is now becoming valuable, and that is the Wichuraiana Rose. The Americans have obtained some beautiful hybrids from it, notably Dorothy Perkins, Lady Gay, and Hiawatha, and there can be little doubt that it will increase in numbers and value every year.

This passing dip into the classes and derivations of Roses will show that there is much of interest in the origin of our beautiful modern flowers. But it will also show that the average flower-gardener would be ill-advised to charge his mind with the task of tracing the great classes back to their source. The latter is a duty for the botanist, and it is not an enviable one, because there has been an immense amount of crossing and inter-crossing, with no accurate records to guide the inquirer. Those who love Roses for their garden beauty will act wisely by contenting themselves with the outline of Rose history here given, and proceed to consider how they can best utilise the magnificent material which awaits their attention.

*Arches, Pergolas, and Pillars.*—Our first requirement is an arch, or a series of arches. Gardens are often divided into sections, one of which may be a flower garden, a second a tennis lawn, and a third a kitchen garden. It is a charming idea to make the



division between a flower garden and a lawn consist of a series of arches, connected by side pieces, thus forming a pergola. And there are no more beautiful plants for covering pergolas than climbing Roses. The principal poles should be at least nine feet long, so as to allow two and a half feet below ground and six and a half feet above it. They may consist of larch or oak. The former is not so durable as the latter, but if the part that



RUSTIC ARCH FOR ROSES

A, A, posts charred and firmly fixed in the ground ;  
B, B, prepared borders for the roots.

is to go below ground is charred, soaked in petroleum, or barked and tarred, the poles will last several years. Larch has two great advantages—straightness and cheapness. These main uprights should be set eight feet apart, and have the earth well rammed round the base in order that the framework of the pergola may be rigid. The top and side pieces may be much lighter.

Ready-made arches, both of rustic timber and metal, can be purchased at moderate prices, and these will be admirable in suitable places, such as over divisions of garden walks.

The suburban gardener who has not room for a pergola will not despise these charming features.

Rose pillars are very beautiful, and they are quite inexpensive. Let the reader first imagine a stiff ribbon border, with the plants all on a level ; and then imagine a border of various kinds of plants, informal and irregular, with Rose pillars rising here and there. How much more graceful and pleasing is the latter than the former !

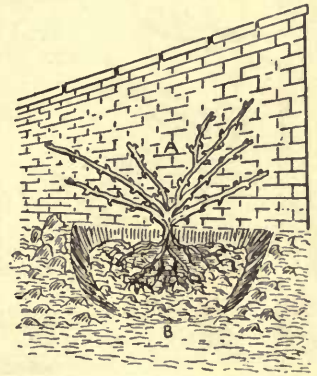
Near the arches or pillars, as the case may be, groups of beautiful plants like Lilies, Campanulas, blue perennial Larkspurs,

Paeonies, Phloxes, and Hollyhocks can be planted. This plan has been followed in one of the charming coloured plates which accompany these notes.

*Beds of Roses.*—If possible we must find room for one or two beds of Roses. Of course we will contrive a full-fledged Rose garden, with arbours, pillars, arches, and beds (see coloured plate) if we have space and means. But failing that we will have a Rose bed. It shall not be filled with stiff, straight standards, or with hard-pruned dwarfs, but with bush Roses of vigorous growth and free-flowering character, that will make handsome objects in themselves. Standard Roses are not favoured nowadays, except by those who grow Tea Roses for exhibition. And lovers of beautiful Rose gardens will not trouble about weak, puny growers, which need pruning to stumps every year; they will select strong sorts which form real bushes without much cutting, and still bear handsome flowers. In one of the coloured plates it will be seen that the splendid variety La France has been utilised in beds in this way. The bushes are not small things like Pinks, but great, glorious masses. There are many good varieties suitable for this and other purposes, as we shall see when we come to our selections.

Whether we grow Roses on or in arches, pergolas, walls (for we must not forget the dwelling-house), or beds we must give them abundance of good food if they are to produce those generous masses of bloom which we want. Starvation will not do, half-measures will not do. We must have strong, healthy plants, growing in rich soil.

*Budding.*—How shall we get our plants? People who are beginning to take an interest in Roses, and are anxious to learn

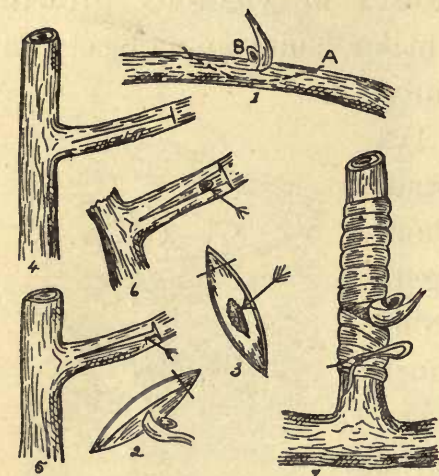


PLANTING ROSES AGAINST A WALL  
A, centre of plant kept open; B, the roots spread out in a wide shallow basin before covering in.



about them, read about different kinds of "stocks," and inquiry reveals the fact, unknown to them hitherto, although familiar enough to gardeners, that Roses are not, as a rule, propagated by seeds, or cuttings, or division, but by putting growth buds of them on the stems of allied plants, such as Briars, or Manettis. The beginner will ask whether he should do this, or whether he should buy plants which have been formed already. There is no doubt as to his course, he should buy plants; partly because there is a difficulty in getting stocks, and partly because budding needs practice.

After the amateur has gained experience of Roses he may very well try his hand at budding. He will have to get briars out of the hedges in autumn, and plant them in his garden. They need only be straight stems like walking-sticks, with a stump of root. In spring they will push shoots, which by the end of July, or from that to the middle of August, will have become as thick as lead-pencils, and a foot or more long. At the base of each



BUDDING ROSES

No. 1, The dotted line, A, shows how to cut out the bud, B; No. 2, the bud severed from the branch; No. 3, arrow points to hard wood to be removed; No. 4, bark of branch cut lengthwise and across; No. 5, arrow points to bark duly raised; No. 6, arrow points to the bud inserted; No. 7, the bud tied in position.

shoot he may cut a slit through the bark, about an inch and a half long, and terminating in a cross-cut. He will then take a growing shoot of the Rose which he wishes to propagate, and cut off a thin slice of wood and bark a little more than an inch long, the centre of which comes underneath a leaf. The reason for this is that at the base of each leaf there is a dormant bud, which is the future plant. After trimming the leaf back to its footstalk, and removing the wood from the bark without displacing the bud or injuring its base, the edges of the

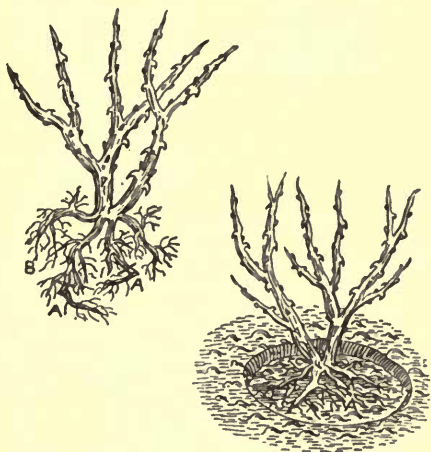
cut made in the stems of the brier should be raised, and the piece slipped in at once, before it has time to get dry. It must be tied in gently but firmly with worsted or raffia-tape. If the bud remain fresh and green at the end of a fortnight it is safe, although it may not grow until the following spring. If it shrivel it will not grow, and another had better be tried. In order to provide for this it is wise to reserve one or two shoots on each brier at the first budding.

*Soil and Planting.*—Now let us consider our bought plants. We shall probably procure them in the autumn, and directly the order has been sent off we must prepare the ground. Those who have a choice between light and heavy soil had better choose the latter.

Roses like what gardeners call “holding” soil, such as strong loam or clay. Light, sandy, gravelly or chalky land is not so good. The ground ought

to be treated in this way: (1) Mark a strip two feet wide right across one end of the bed; (2) take out the soil to a foot deep and wheel it to the other end of the bed; (3) spread a coat of manure in the trench and dig it into the subsoil; (4) fill up the trench with the topsoil from another two-foot strip; (5) so proceed until the end of the bed is reached; and finally (6) fill up the end trench with the loose soil that came from the first strip. This greatly enriches and deepens the ground. Allow the soil a week or two to settle down, and then plant the Roses, not deeply, but work the soil very firmly about the roots.

*Pruning.*—As regards newly planted dwarf or standard Roses, it is generally agreed by experienced cultivators that the branches are best pruned back to three or four buds about the end of March;



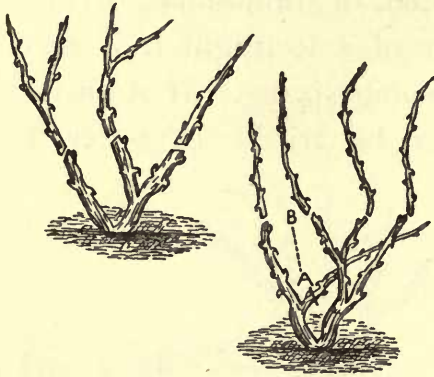
PLANTING ROSES

Left-hand figure.—A, A, brused roots to be cut off; B, fibrous roots to be preserved.  
Right-hand figure.—Wide, shallow hole with the roots well spread out.



fresh shoots soon break from the short stumps left. Experts, however, differ as to whether climbing Roses should be cut back

in the same way. Some advocate that the long canes should be cut close back to the ground in the spring, and allowed to throw up entirely new shoots from the base. Others declare that this is not necessary. As a rule, amateurs dislike cutting Roses back, much less climbing Roses, and are only too glad to be guided by the expert who recommends non-shortening. The present writers are in favour of non-shortening where the Roses are planted in rich, deep soil; but if they are to go into

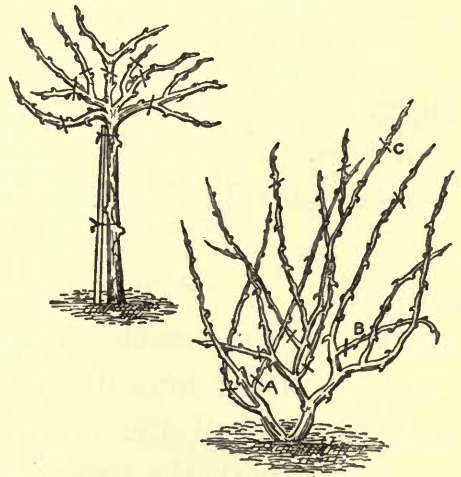


PRUNING BUSH ROSES

The left-hand figure shows how to prune a dwarf Hybrid Perpetual, and the right-hand figure how to prune a Hybrid Tea. Cross branches should be cut hard back, as shown at A, then the basal bud will grow strongly in the direction shown by the dotted lines B, and strengthen the tree.

shallow soil, above gravel or chalk, cutting back must be practised.

As regards general pruning—that is, the treatment of the plants in future years when well established—growers may be advised to proceed on the following lines: (1) *Dwarfs*. Prune varieties which form summer shoots of about the thickness of lead-pencils back to within six buds of the base every spring, but allow varieties which form shoots as thick as the finger to extend two or three feet, and merely trim the tips, and the weak breastwood which forms on the main stems. (2) *Standards*. The great majority of the Roses which are grown as standards form summer shoots of



PRUNING STANDARD AND CLIMBING ROSES

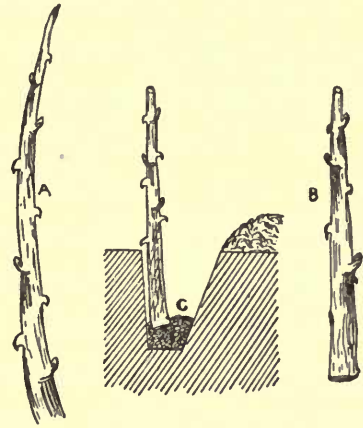
Left-hand figure.—In pruning a standard Rose the branches should be cut back to the dark lines. Right-hand figure.—Pruning a climbing Rose. A and B, weakly and cross branches cut out; C, unripe tips of other branches cut off.

about the thickness of a lead-pencil, and may be cut back to four buds about the end of March each year. (3) *Climbers with long canes*. Climbers which form long, strong, upright canes, such as Crimson Rambler and Carmine Pillar, do not need much pruning. On no account must the vigorous rods be cut back to the ground. When, however, considerable numbers of canes have formed, and are getting thick and tangled, the old ones may be cut right out to give more room for the young ones which have pushed from



PROPAGATING ROSES FROM SPRING CUTTINGS

A, cutting with a heel, severed beneath a joint; B, point of cutting retained; C, the cutting inserted.



PROPAGATING ROSES FROM AUTUMN CUTTINGS

A, suitable shoot; B, cutting prepared for insertion; C, cutting inserted, with its base on a layer of sand.

the base. (4) *Climbers with much side wood*. There are several valuable climbing Roses, such as Gloire de Dijon, Alister Stella Gray, William Allen Richardson, and Madame Alfred Carrière, which throw many vigorous young side canes from their main rods; and these are particularly valuable for walls, because they cover a considerable surface in a short time. They do not need cutting back when established, but will be the better for an annual trimming, thinning out tangled shoots.

*Special Selections*.—We may now give a few selections of varieties for various purposes. These are carefully chosen to unite vigour of growth with bright colours and free-blooming. Many,



too, are perfumed, but the grower will not find such fragrance in all the pillar Roses as in the old Cabbage Rose.

### SELECT ROSES FOR ARCHES, PERGOLAS, AND PILLARS

*Ards Rover*, crimson.

*Carmine Pillar*, carmine.

*Crimson Rambler*, crimson.

*Dorothy Perkins*, pink.

*Félicité Perpétue*, white.

*Euphrosyne*, pink.

*Leuchstern*, carmine.

*Mrs. F. W. Flight*, pink.

*Penzance Brier Lucy Bertram*,  
red.

### SELECT ROSES FOR WALLS

*Alister Stella Gray*, yellow.

*Gloire de Dijon*, yellow.

*Longworth Rambler*, crimson.

*Madame Alfred Carrière*, white.

*Reine Marie Henriette*, red.

*Wm. Allen Richardson*, copper.

### SELECT ROSES FOR BEDS

*Anna Olivier*, white or buff.

*Antoine Rivoire*, cream.

*Caroline Testout*, pink.

*Frau Karl Druschki*, white.

*Grüss an Teplitz*, crimson.

*Gustave Nabonnand*, flesh.

*La France*, peach.

*Liberty*, crimson.

*Madame Abel Chatenay*, rose.

*Marie van Houtte*, lemon, tinted pink.

*Mrs. John Laing*, rose.

*Mrs. R. G. Sharman Crawford*, rose pink.

The above lists will meet the requirements of those who only want a small collection of Roses, but it will be wise to give special consideration to the most important sections, for the benefit of those readers who desire to study Roses more closely.

### HYBRID PERPETUALS

The Hybrid Perpetuals form a considerable class, and comprise the largest flowered and most brilliantly coloured of all Roses. The reader who goes to a show and sees long lines of green boxes filled with immense scarlet, crimson, rose, pink and white Roses, has an opportunity of becoming acquainted with the best of the H.P.'s—as far, at least, as their blooms are concerned when produced by skilled growers. He must not assume that he knows all about them from this introduction alone; he still has to learn about them as plants; but he has got a step on

the road. He can take the names of those he admires most, order them in due course, and then see what they are like in his own hands. To get them up to show standard he will have to do more than buy strong-plants, and plant them in deep, well-manured ground; he will have to prune hard, to thin the shoots, and to sacrifice some of the flower buds. Many amateurs who visit shows expect that every variety whose name they write down will come exactly the same in their own gardens as they saw it on the stand—as large, as perfect in form, as fresh, and as rich in colour—without any special treatment. Of course they are wrong, and suffer disappointment. If, however, they will be satisfied with a little less than exhibition standard—rather smaller size, less regular contour—they may get great pleasure out of H.P. Roses. The varieties have two well-marked flowering periods, the first being the end of June or the early part of July, and the second the first half of September. They are not continuous bloomers, like the Teas. There are, however, one or two varieties, notably the lovely pink Mrs. John Laing, which bloom over a much longer period than the majority.

We have seen that the Hybrid Perpetuals are of mixed parentage, the Monthly, Bourbon and Damask Roses having all been used as parents for them. They are mostly green-stemmed, with five rough leaflets. If a shoot comes up from the base which grows very strongly, and has smooth leaves divided into seven parts instead of five, it is probably not a part of the Rose plant, but of the stock on which it was budded, and had better be pulled off at the base. As a class the H.P.'s are very strongly scented, and this is one of their greatest recommendations. All are not equally fragrant, and one or two, such as Baroness Rothschild and Her Majesty, are practically scentless. Recognising that Rose lovers look for perfume, we will presently give a special selection of fragrant Roses.

H.P. Roses are generally budded on the Manetti stock in



nurseries. Private growers cannot get this stock, unless they propagate it themselves, as nurserymen do, and that is not general. If home propagation is practised it is generally by budding on standard brier stocks, in the way already advised; or by dispensing with stocks altogether, and striking cuttings (p. 11). Roses which are struck from cuttings are called "own-root" Roses. Experts consider that, on the whole, budded Roses are better than "own-rooters," but certainly there are plenty of excellent H.P. Rose bushes in cultivation which have been raised from cuttings. Some varieties do better than others, and the soil also has a bearing on success. With a naturally good Rose soil, such as substantial loam, the majority of the sorts make very good plants from cuttings. Those who like to try this method of propagation should take firm, brownish, well-ripened shoots of the current year's growth about the end of September, preferably with a short "heel" of the older wood, cut them into lengths of six or eight inches, and insert them firmly to within a couple of inches of the tip. They can be put a few inches apart in a row, and at the end of a year transplanted to the beds. They should make very good plants in the second season. If they do not, they probably never will.

The question of disbudding H.P. Roses, both in relation to shoots and flowers, turns on whether the grower's principal requirements are large numbers of medium-sized flowers for cutting, or small numbers of bigger ones for exhibition. When the plants start growing in spring after the pruning, which will be done about the end of March, they will make one growth from each of the buds that were left, and subsequently form a number of side shoots, on all of which flowers may be expected. The grower for show will not let all these shoots develop; he will take them out while they are quite small, and restrict the plants to three or four growths. Further, he will thin the flower buds on those left, removing all the small outside ones where several come in a

cluster (which, however, will not be common), and leaving the central one only. There is a half-way course between this severe limitation and that of letting the plants grow and flower just as they like; it is to limit them to six shoots each. Plants thus restricted carry very attractive flowers, and are handsome in themselves. Complete non-pruning and non-disbudding—in short, an absolutely natural system of cultivation—is convenient; it saves the unskilled amateur much searching of heart, as well as a certain amount of time. But it is not good for the weak growers, which must have severe pruning in spring if they are to do any good. It is an excellent plan for the beginner to prune all his Roses hard the first year; the following season he will have sufficient knowledge of the different varieties to be able to decide how to treat them. As stated in the general remarks on pruning, it is a golden rule to prune strong growers lightly, and weak growers severely.

The amateur who is desirous of making a collection of the best H.P. Roses should choose from the following varieties:—

*Abel Carrière*, deep crimson, shaded with purple.

*A. K. Williams*, carmine, flattish flower, a popular show Rose.

\**Alfred Colomb*, carmine, globular, very sweet.

\**Baroness Rothschild*, pale pink, a strong grower, very thick flower stems, no perfume.

\**Ben Cant*, dark crimson, strong grower.

\**Captain Hayward*, scarlet, strong grower.

\**Charles Lefebvre*, scarlet, vigorous, free-blooming and very sweet, a grand old Rose.

*Comte de Raimbaud*, crimson, vigorous.

*Comtesse de Ludre*, brilliant light red, rather weak.

\**Dr. Andry*, crimson, vigorous and fragrant.

\**Duke of Edinburgh*, brilliant scarlet, vigorous.

*Duke of Wellington*, crimson, bright in colour.

*Dupuy Jamain*, cerise, vigorous and free-blooming.

\**Earl of Dufferin*, maroon, very sweet, vigorous.

*E. Y. Teas*, red, not vigorous, but desirable for its perfume.

\**Frau Karl Druschki*, white, very strong and free-flowering; little perfume.

\**General Jacqueminot*, scarlet, a vigorous variety with very sweet flowers, a fine old sort.

\**Helen Keller*, cerise, globular flowers, a beautiful variety, but not very strong.

*Her Majesty*, pink, very large, vigorous grower, no perfume.

*Horace Vernet*, scarlet, fair grower, a popular show Rose.



- \* *Madame Gabriel Luizet*, silvery pink, very sweet, not a good late bloomer.  
*Madame Victor Verdier*, light red, brilliant colour, vigorous.  
*Marchioness of Londonderry*, ivory, large, deep flower, vigorous.  
*Maria Baumann*, carmine, deep flower, fragrant.  
*Merveille de Lyon*, white, strong grower and free bloomer, but not sweet.  
 \* *Mrs. John Laing*, pink, vigorous, sweet, very free bloomer, one of the best.

- \* *Mrs. R. G. Sharman Crawford*, pink, vigorous, very floriferous.  
 \* *Sénateur Vaisse*, crimson, globe-shaped flower, sweet.  
*Suzanne Marie Rodocanachi*, bright rose, very rich in hue.  
 \* *Ulrich Brunner*, cherry, globe-shaped, a strong grower and free bloomer, very sweet.  
*Ulster*, salmon, deep flower, strong grower.  
*Victor Hugo*, bright crimson.  
*Xavier Olibo*, dark crimson, globe-shaped.

\* These might be chosen for a small collection.

### FRAGRANT H.P. ROSES

The following varieties may be selected from the above list as very sweet:—

Alfred Colomb.  
 Charles Lefebvre.  
 Dr. Andry.  
 Earl of Dufferin.

E. Y. Teas.  
 Général Jacqueminot.  
 Madame Gabriel Luizet.  
 Marie Baumann.

Mrs. John Laing.  
 Sénateur Vaisse.  
 Ulrich Brunner.

### TEA-SCENTED

The beautiful Tea-scented Roses differ very considerably from the H.P.'s. There is little resemblance either in habit or form of bloom. Whereas the H.P.'s have green wood, the young shoots of a great many of the Teas are red or brown. This has a very marked effect when the two classes are grown in separate beds. The H.P.'s will have no distinctive beauty until they are full of foliage and bloom, but the Teas will be beautiful from the time they have made their first few inches of growth. The bed will be a glow of warm, lively, cheerful colour in the earliest days of May—almost like a bed of young herbaceous Paeonies. Another important difference between the classes is that while the H.P.'s complete their growth in two separate movements, the Teas are always growing—that is, if the soil is good, and they receive sufficient moisture. The Teas flower on



CROWN IMPERIALS

By Margaret Waterfield



2000  
2000  
2000  
2000  
2000

new, young wood, which means that they are far more continuous in blooming than the H.P.'s. Almost every bit of new wood on a vigorous, healthy Tea will bloom, and as such wood keeps coming for several successive months, it follows that flowering is practically incessant.

Owing to their neater flowers and relatively long stems the Tea Roses are more valuable for room and personal adornment than the H.P.'s. They are delightful vase and buttonhole flowers. With few exceptions they possess a piquant, refreshing, agreeable, but not powerful perfume. While they differ in degrees of vigour, the majority are extremely vigorous. The grower need never be afraid to take long pieces of wood with his vase flowers in the case of these strong shoots, on the ground that he is risking spoiling the plants, as plenty more will come. Like Sweet Peas, the more they are cut the better they bloom, always provided that the culture is what it should be. The beauty and grace of the buds of nearly all the Tea Roses is one of their greatest charms. The majority are long and symmetrical, with the outer petals evenly folded to the tip, or perhaps with their edges curved like the fold of a shell.

The reader will agree that there are sound reasons why he should grow Tea Roses in his garden; indeed, he may be so impressed by their merits that he will give them the lion's share of his ground. He will be wise in so doing. There will be brief periods when the H.P.'s will outshine them, as, for instance, during the first half of July, but the steady persistency of the Teas will conquer in the end. The cautious amateur may wonder why it is that if the Teas are so beautiful and valuable they are still so comparatively little grown. There are more reasons than one for this. The first is that although the Rose has been so popular a flower for many years it has been under the dominion of exhibitors, and it is only in recent times that it has come to be valued at its proper worth as a garden



flower pure and simple. Now, most exhibitors are H.P. adherents, because they want large and richly coloured flowers for their show stands. So long as they get a limited number of fine flowers in July, which is the great Rose show month of the year, they are content. The second reason is that there is a widespread impression that the Teas are tender plants, and consequently, that heavy losses may be expected among them in very severe winters. Although the belief is not without foundation it is carried a great deal too far. To say that most of the Tea Roses are not absolutely hardy is not to say that they are exceedingly tender. It is the inability of people to recognise that there is such a thing as a medium which causes so much mischief, and it is deplorable that large numbers of Rose-lovers deny themselves the pleasure of growing a collection of these flowers because they fear what they regard as the inevitable expense of extensive renewals every season. Even in cold districts it is quite easy to preserve the plants. One simple plan of effecting this is to draw soil up each one to the height of eight or ten inches about the end of November, and then spread a coating of long litter all over the bed between and round the mounds. This practice is not only good as a preservative, but also culturally. It loosens and enriches the surface soil thoroughly. At the end of the winter the mounds are reduced, and the soil is spread over the remnants of the litter. When the plants are treated in this way it is rarely that extensive injury is done. The upper, unprotected parts of the plant may be killed, but they can be cut away, in fact they would perhaps be removed in any case, in the ordinary course of pruning. The lower wood is safe, and being softened by the earth the buds break strongly. If any Teas be grown as standards (which will hardly be the case unless the cultivator is growing for show) some bracken may be placed among the branches, and tied round to prevent its being blown out.

The Tea Roses are propagated by budding them on to Brier

stocks. The standard Briers out of the hedges are suitable. For dwarfs (and these are grown far more extensively than standards) stocks have to be raised from seeds or cuttings of Briers. The Teas are not much grown on their own roots, but some of the most vigorous varieties may be raised from cuttings in the same way as H.P.'s.

There is a general understanding that Teas should be pruned less severely than H.P.'s, but in practice it will be found that the same rule of pruning weak growers severely and strong growers lightly may be adopted with advantage.

The following are the principal varieties of Tea-scented Roses:—

\**Anna Olivier*, white, ivory, or buff, free-flowering, vigorous, and in spite of its variable colour, a really valuable sort.

*Bridesmaid*, a deep pink sport from Catherine Mermet.

*Caroline Kuster*, lemon, vigorous.

\**Catherine Mermet*, pink, a very free bloomer. One of the best varieties we have for garden and pot culture.

*Comtesse de Nadaillac*, apricot, a charming flower and popular with exhibitors, but not vigorous.

\**Dr. Grill*, rose, vigorous and free.

\**Francisca Krüger*, deep yellow, vigorous.

*François Dubreuil*, crimson.

\**Hon. Edith Gifford*, white, free-flowering, vigorous, and generally one of the best.

*Homère*, rose, exquisite bud, vigorous.

*Innocente Pirola*, cream, vigorous.

\**Jean Ducher*, salmon, vigorous and distinct.

*Lady Roberts*, apricot, vigorous and free-flowering.

*Madame C. Guinoisseau*, yellow, vigorous.

*Madame Cusin*, deep rose, rich and distinct colour.

*Madame de Watteville*, cream, an exhibitor's variety, somewhat delicate.

\**Madame Hoste*, lemon, vigorous and free-flowering.

\**Maman Cochet*, flesh pink, deep flower, vigorous and free-flowering.

\**Marie van Houtte*, lemon, rose edge, vigorous and free.

*Medea*, pale yellow, vigorous.

*Mrs. Edward Mawley*, carmine rose, beautiful colour.

*Muriel Grahame*, cream, a charming variety, but not very vigorous.

*Niphotos*, pure white, very deep, a lovely sort, but only suitable for indoor cultivation. There is a climbing variety of it. These are two of the most popular button-hole Roses grown.

*Souvenir d'Elise Vardon*, cream, deep flower of splendid shape, but more of a show than a garden Rose.

\**Souvenir de J. B. Guillot*, crimson, vigorous and free.

\**Souvenir de Pierre Notting*, apricot, very vigorous, a most useful Rose of distinct colour.

\**Souvenir de S. A. Prince*, pure white, vigorous, and a good garden as well as show Rose.

*Souvenir d'un Ami*, bright rose, very fragrant, good both for indoors and out.



*Sunrise*, salmon, charming colour, but not a hardy variety.

*The Bride*, white or very pale yellow, a sport from Catherine Mermet, good in pots, and also a useful garden Rose.

\* *White Maman Cochet*, a white or lemon sport from Maman Cochet; it seldom comes pure white, but is in all circumstances one of the best varieties grown.

\* These might be chosen for a small collection.

### HYBRID TEAS

The Hybrid Teas have shown the greatest development of any during recent years. Most of the best varieties have been introduced since 1880, and several splendid sorts since 1890. It may be safely prophesied that for many years to come the most marked improvements effected with any class of dwarf Rose will be with H.T.'s. The most successful of modern raisers are working on them, and apart from that there is the consideration that the H.P.'s and Teas have already been improved so much that further development is difficult. The H.T.'s present a mine only half-worked, and one which has yielded gems of such promise as to foster bright hopes of further good things. The varieties, as we have already seen, are crossbreds between H.P.'s and Teas, and they combine in no small degree the merits of both these great and beautiful classes. They have warmer leaf tints than the former, and a longer flowering season; they have, on the whole, more vigorous growth than the Teas, and richer colours. All this amounts to saying that they are very valuable as garden plants, and such is indeed the case. In the list of twelve Roses for beds on a previous page two are Teas, three H.P.'s, and seven H.T.'s. This is surely very significant. In our own experience of Rose-growing during recent years, which embraces all the classes, the H.T.'s are already the most valuable for dwarfs, and we have little hesitation in saying that every succeeding year will strengthen their position.

As a class, the H.T.'s are distinguished by strong growth with a fair amount of young spring colour (although not quite

so much as the Teas), profuse blooming, large flowers, and bright, clear colours. They are not, as a whole, quite so neat in the bud as the Teas, nor are the expanded flowers so full and brilliant as the H.P.'s, - but they have a beauty and character of their own. Their long flower stems make them particularly valuable for cutting. Like the Teas, they are continuous growers and bloomers; indeed, one or two, notably the rich and fragrant *Grüss an Teplitz*, are rarely without flowers.

They are propagated by budding on Brier stocks, and also by cuttings.

The following are some of the best varieties:—

*Alice Lindsell*, cream, pink centre.

\* *Antoine Rivoire*, cream, orange centre, very vigorous and free-flowering.

\* *Augustine Guinoisseau*, silvery pink, very vigorous, and with large flowers, a sport from the old variety *La France*.

*Bessie Brown*, cream, strong grower, but not very free bloomer, a popular show variety.

\* *Camoens*, rose and yellow, very vigorous and free-flowering.

\* *Caroline Testout*, bright pink, vigorous, and very persistent in flowering.

*Captain Christy*, flesh, an old favourite.

*Clara Watson*, cream, rose-tinted, free and good.

*Edith d'Ombrain*, white, strong grower.

*Grace Darling*, cream, pink shading, vigorous, free-flowering, a charming variety.

\* *Grüss an Teplitz*, crimson, very sweet, vigorous, and nearly always in bloom.

\* *Gustave Regis*, nankeen yellow, vigorous.

*Kaiserin Augusta Victoria*, lemon, vigorous and free.

*Killarney*, pale pink, vigorous.

\* *La France*, silvery pink, vigorous, free-blooming and fragrant.

\* *Liberty*, crimson, very fine.

\* *Madame Abel Chatenay*, salmon pink, vigorous and free.

\* *Madame Cadeau Ramey*, flesh, rose shading, vigorous.

\* *Madame Jules Grolez*, silvery pink, vigorous and free.

*Madame Pernet Ducher*, canary, vigorous.

\* *Madame Ravary*, orange, distinct, vigorous and free.

\* *Marquise de Salisbury*, crimson, semi-double, vigorous.

*Marquise Litta*, carmine rose, vigorous.

*Mildred Grant*, ivory, deeper tint, very thick flower stems, but not a free grower and bloomer, popular for exhibition.

\* *Mrs. W. J. Grant*, rosy red, very bright and free, sweet.

*Papa Lambert*, deep rose, vigorous.

*Viscountess Folkestone*, cream, very sweet.

\* These would make a splendid selection for a small garden.



## NOISETTES

The Noisette section is not important in point of numbers, but it includes two or three climbing or rambling varieties of considerable value. The varieties bear their flowers in clusters. The following are the chief:—

*Aimée Vibert*, white, free-flowering; a valuable pillar Rose, owing to its dense habit, and nearly evergreen character.

*Alister Stella Gray*, light yellow; a valuable wall and pillar variety, growing and flowering throughout the summer and well on into autumn.

*Céline Forestier*, an old yellow, once popular but not grown extensively nowadays.

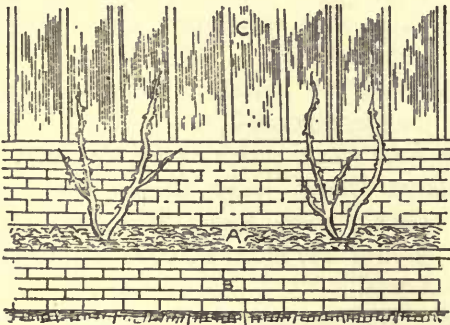
*Fortune's Yellow*, orange; another old sort, not much seen now; it does not thrive in cold situations, but succeeds admirably in a greenhouse.

*Lamarque*, white, with pale yellow shading; a good climber, but not very hardy.

*L'Idéal*, coppery red, very distinct.

*Maréchal Niel*.—Once the most popular of all Roses, and still a great favourite, owing to its rich colour, powerful fragrance, extremely vigorous growth, and wonderful freedom of blooming. If it were hardy enough to thrive in most districts out of doors it would be grown in every garden, but it is not. Moreover, it is

liable to go off with canker, often collapsing very suddenly. It is generally reserved for greenhouse cultivation, and modern growers find that they get the best results by pruning it closely back to the stock after flowering, leaving only two or three buds. If healthy, and growing in good soil, it generally breaks very strongly after this drastic treatment, and in a few



ROSES PLANTED IN BORDERS UNDER GLASS

A, border; B, low wall to enclose border; C, glass.  
The shoots are trained on wires.

weeks makes new canes twelve to twenty feet long. These shoots ripen during the autumn, and if kept dormant in a cool temperature will throw out abundance of short, flowering growths the

following spring. *Maréchal Niel* is best planted out in a border of loamy soil in a cool greenhouse or conservatory.

*Rêve d'Or*.—Buff, a good climber, with dark red stems.

*William Allen Richardson*.—Orange yellow, charming in the bud, but not when expanded. A hardy, vigorous, and very free-flowering variety, which succeeds under the hard pruning accorded to *Maréchal Niel*.

*Climbing Roses other than Noisettes*.—There are several beautiful climbing Roses which do not come into the *Noisette* class, such as the *Sweet Briars*, *Polyanthas*, *Singles*, and *Banksian*. Let us consider a few of the best varieties in these sections.

#### PENZANCE SWEET BRIERS

The hybrid *Sweet Briers* have fragrant foliage and beautiful single flowers, which are followed by scarlet hips. They may be grown either as hedges or pillars. The following are a few of the best:—

*Amy Robsart*, rose, strong grower.

*Anne of Geierstein*, crimson, vigorous.

*Meg Merrilees*, crimson, vigorous.

*Lucy Bertram*, crimson, white centre, vigorous.

*Rose Bradwardine*, rose, very strong.

#### BANKSIAN

There are two forms of *Banksian Rose*, a white and a yellow. Both have small double flowers. They grow luxuriantly on a warm, sheltered wall, but not on a cold one. No pruning is required, except to thin them out when getting tangled. They are charming little Roses.

#### AYRSHIRE

This is a small section, but it includes two very useful varieties, both extremely vigorous growers—in fact they will ramble almost all over the garden when growing in good soil, unless kept in check.



*Bennett's Seedling (Thoresbyana)*.—This has semi-double white flowers, borne in clusters.

*Dundee Rambler*.—Semi-double, white with pink edges.

#### EVERGREEN CLIMBERS

Also a small section, and corresponding with the Ayrshire to the extent of being represented by two particularly noteworthy varieties.

*Félicité Perpétue*.—White, double or semi-double, one of the most vigorous and free-flowering of all Roses; makes a splendid pillar, and is also suitable for walls. It grows with great rapidity, and makes quite a thicket of shoots.

*Rampant*.—White, somewhat smaller flowered than *Félicité Perpétue*, and semi-double. It grows with almost equal luxuriance to its sister variety, and makes a beautiful snow-pillar of fleecy bloom.

#### CLIMBING POLYANTHA

These, the multiflora or many-flowered climbers, are practically a new class, the rise of which has been one of the great features of modern flower-gardening. They are all strong growers, and bloom profusely. They are admirably adapted for arches, pergolas, and pillars, but not for walls. They are popularly known as Ramblers.

*Aglaia*.—The Yellow Rambler; flowers small, semi-double, and pale yellow in colour.

*Claire Jacquier*.—Nankeen yellow, distinct colour.

*Crimson Rambler*.—Rich crimson, the flowers borne in large clusters. Perhaps the most popular Rose grown. Splendid for pillars and arches, but not suitable for walls, especially in dry, poor soil.

*Philadelphia Rambler*.—Deep crimson, larger than *Crimson Rambler*, and may displace it in many gardens when it becomes well known and cheap.



GLADIOLI AND AGAPANTHUS

By Beatrice Parsons



TO VIND  
AIRBORNE



*Queen Alexandra*.—Deep pink, double or semi-double.

*Thalia*.—The White Rambler, semi-double, small flowers; a free bloomer.

## SINGLES

The single Roses are not, as a class, long lasting, but several grow so vigorously, and are so brilliant, that they are thoroughly worth growing.

*Carmine Pillar*.—Carmine; one of the most valuable of all climbing Roses; a very vigorous grower, and an abundant early bloomer.

*Macrantha*.—Flesh-coloured flowers, with prominent golden anthers.

*Sinica Anemone*.—Soft pink; vigorous grower; evergreen, likes an open fence.

## CLIMBING HYBRID ROSES

*Ards Rover*.—Crimson; a strong grower and good for pillars; larger flowered, but less free in blooming, than the Ramblers.

*Bardou Job*.—Rich crimson; semi-double; good for low pillars and walls.

*Cheshunt Hybrid*.—Bright red; an old favourite for walls and arches.

*Dorothy Perkins*.—Bright pink; very free blooming, with the flowers in large clusters; blooms long and late; one of the best climbers.

*Lady Gay*.—Resembles Dorothy Perkins, but is of a deeper shade; a splendid variety.

*Longworth Rambler*.—Crimson, semi-double; a very popular climber.

*Madame Alfred Carrière*.—White, vigorous; a valuable wall Rose.



*Reine Marie Henriette*.—Deep, egg-shaped, rose flowers; highly perfumed; good for walls.

*Reine Olga de Wurtemberg*.—Crimson, semi-double; a vigorous grower.

#### CLIMBING TEA-SCENTED

*Billiard et Barré*.—Deep yellow; vigorous, good for arches.

*Bouquet d'Or*.—Deep yellow and very sweet; a popular old wall Rose.

*Gloire de Dijon*.—Buff, very sweet; hardy, free-flowering and vigorous; one of the most popular of all Roses.

*Madame Bérard*.—Fawn; one of the *Gloire de Dijon* class.

#### TRAILING ROSES, SUITABLE FOR BANKS

The Japanese Roses bearing the name of *Wichuraiana* are very useful for covering banks. They produce long, rambling, vigorous stems, clothed with dark green, shining leaves. Some have single, some semi-double, and others quite double flowers.

*Alberic Barbier*.—Cream, deeper centre, semi-double; one of the best.

*Gardenia*.—Yellow, double; one of the best.

*Wichuraiana*.—White, single.

#### ROSES IN POTS

Lovers of Roses who have glass will perhaps like to grow a few plants in pots. Well-grown pot Roses are beautiful objects in a greenhouse, and yield flowers for cutting before outdoor plants come into bloom. They are easy to manage. It is wise to allow them the rest which is natural to them during the greater part of the autumn and winter, but they may be started

into growth towards the end of winter, and had in bloom in early spring.

A start might be made in October, either by buying plants, or by potting some from the garden. Six-inch pots will be suitable. A soil mainly consisting of fibrous loam is the best. The pots should be plunged in ashes in a sheltered place. With protection in very severe weather they will be quite safe out of doors. They may be brought into the house in batches, if desired, in order to get a succession of flowers. It is not wise to force them in a high temperature; 45° to 50° will be enough. After flowering they should be stood out of doors, and allowed to go to rest naturally. In autumn they must be repotted. The pruning may be done when they are put under glass, and should be severe, the shoots being shortened to two or three buds. The following are good varieties: Anna Olivier, Bridesmaid, Captain Hayward, Caroline Testout, Catherine Mermet, and Mrs. John Laing.

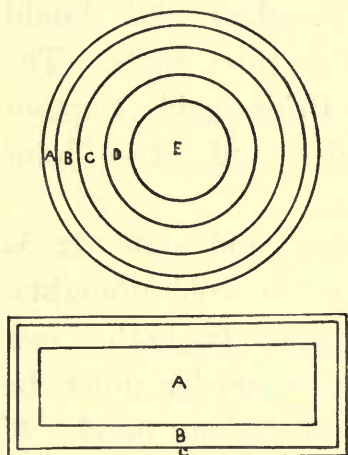
Mildew may be troublesome, both indoors and out. It is worst under glass, when the plants are subjected to cold draughts, and out of doors in extremes of drought or wet. In both cases the best remedy is flowers of sulphur, but the powder must be applied at the first sign of an attack if it is to do any good. If grubs curl the leaves of outdoor plants, they must be crushed with finger and thumb.



## BULBS

THE amateur flower gardener is often ignorant of botanical distinctions, and he would not be unwise if he were to remain so, for they are generally tiresome and bewildering, and frequently unnecessary for purely gardening purposes. He might think that he at least knows what bulbs are, for he has grown familiar with the autumn catalogues, and observed the prominence therein of

such plants as Hyacinths, Tulips, Gladioli, and Daffodils. Even here, however, the botanists would perplex him if given the chance, for they would tell him that although Tulips are bulbs Gladioli are not; indeed, they might go still further, and heap confusion on his head by proving that while some Irises are bulbs others are rhizomes. Botanically, a Crocus is not a bulb; it is a corm. A Begonia is not a bulb, but a tuber.



PLANTING BULBS IN BEDS

Large round beds. A, B, C, D, and E, rows of bulbs. Square, or rectangular shaped beds. A, B, and C, spaces to be filled with bulbs.

Doubtless such distinctions as these and others which exist, but need not be drawn upon as illustrations, are necessary to botanists, or they would not be made. They are, however, certainly not needed in ordinary gardening. The Gladiolus, equally with the Tulip, forms a body underground that is distinct from, and additional to, its roots; and if the structure of the two bodies differs in such a degree as to justify botanists in putting them into two distinct classes, that need not place flower gardeners under the obligation of keeping them separate unless

they think proper. The large bulb-dealers display an elasticity of conscience in this matter which the amateur may imitate, for it will be to his convenience and tranquillity of mind to do so. The very worst that can happen to him in the matter is that some budding botanical student may one day or other make a point against him. This will doubtless afford deep satisfaction to the callow botanist, but it will not have the remotest effect on the garden of the culprit, who may go on his way happy and unrepentant. For ourselves, we are cheerfully conscious of technical error in the composition of the present chapter on bulbs, and make no sort of apology for taking a simple line.

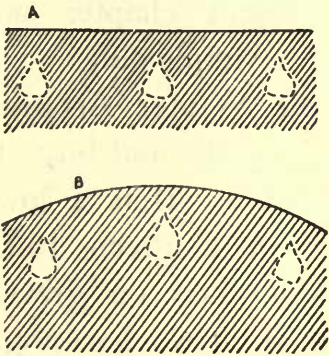
*Winter Aconites*.—Our very first plant, the Winter Aconite (*Eranthis hyemalis*), is not a true bulb, but we buy it—and buy it very cheaply too—from bulb-dealers in the autumn. It is a low grower with a yellow flower, which nestles in a green ruff. Individually, it is not very striking, but in a mass on grass, especially when associated with Snowdrops, it is very charming. One may see it thus planted in the Royal Gardens, Kew. It is not in the least particular about soil.

*Allium neapolitanum* is a pretty bulb, related to the Onion. Happily it has not so pungent an odour. The long stems of white flowers are very pure and pleasing. The plant may be grown out of doors, or in pots or baskets for early blooming under glass. At Kew it is grown in a hanging basket suspended from the roof of the greenhouse, in company with such charming plants as Begonia Gloire de Lorraine and Lachenalias. Those who copy this pleasing plan should get a wire basket and line it with moss to enable it to hold soil. The compost may consist of two parts of loam, one of leaf-mould, and about a tenth of coarse sand. The bulbs may be put in during November, and covered an inch deep. They will probably bloom about the end of February.

*Alströmerias* are very distinctive in appearance, and most pleasing



to boot. One occasionally meets with them in several gardens in a particular district, and not one of the owners knows the name, or can remember it for many hours if it is given. This is certainly a case, if there ever was one, for a popular name. Some one has made an attempt to meet the want by calling them Herb Lilies, but that, of course, is altogether too vague and general to be of any use. The plants flower in summer, and the stems rise two feet or more high. The plants give no trouble when they have once become well established in light, warm soil; in fact,



PLANTING BULBS IN BEDS

A, flat surface where the soil is naturally dry and light; B, rounded surface where the soil is of a rather heavy nature.

they are best left to themselves, as they do not like frequent disturbance. Any feeding that is thought necessary can be done in the form of mulchings of manure. Perhaps the most attractive species is pelegrina. In cold districts, especially if it is growing in damp, heavy soil, it is wise to spread some dry litter or ashes over the root-stocks in autumn.

*Anemones* will be found in the bulb catalogues, and the rugged little roots (which rather resemble lumps of dry mud)

sell in thousands, especially in the case of coronaria, the Crown Anemone, of which St. Brigid and Alderborough are splendid strains; fulgens, apennina, and nemorosa. These will be referred to under Herbaceous and Rockery Flowers.

*The Arum Lily (Richardia or Calla aethiopica)* is a beautiful and popular plant which thousands of bulb lovers grow in their greenhouses and rooms for the sake of its pure white spathes, which we may call flowers in a popular way. The Arum Lily is not perfectly hardy, and cannot be relied on, therefore, to pass the winter out of doors, except in very mild districts. Lovers of the plant must not be misled by seeing it growing in the open air in the Midlands and north of Great Britain, because it is the custom of

gardeners to plant it out late in spring for the summer season, lifting it again in September, and putting it into pots for flowering in winter and spring. In places where there is little or no frost it will often pass the winter safely, especially if it is well established near water, and when a colony of it is established there are few objects in the garden that are more beautiful. There is a miniature form of the Arum Lily called Little Gem that many people like for pot culture, and there is also a yellow named Elliottiana.

Arum Lilies can be bought from bulb-dealers in autumn, and they may be potted at once into a similar mixture of soil to that recommended for Alliums. Unless they are very large they may go into 5-inch pots, but when they have attained to considerable size they must have 7-inch or 8-inch pots, as they are free rooters and need a great deal of water. The transfer is not likely to be called for the first winter. Assuming that the plants are bought in autumn, they may go into the smaller pot for the winter, be planted in rich soil in the garden at the end of May, and be potted up into the larger size at mid-September. They may lose one or two leaves when they are potted, but this need not alarm the grower, as fresh ones will soon form. When he has got large clumps he may divide them, keeping the small offsets which form in little pots until they are strong enough to go into the full size for flowering.

Arum Lilies should never be allowed to suffer from want of water, whether growing indoors or out. If the soil gets quite dry, and remains so for even a short time, they may suffer severely. The grower should remember that they are semi-aquatics, and then he will not neglect them in this all-important matter.

We have seen that the Arum Lily is not really an Arum, but a Richardia. The Arums proper are similar in structure, but in no case so beautiful as the chaste and lovely Lily of the Nile. They are hardy plants, mostly with thick, fleshy, spotted stems, and strangely marked flowers. They are uncanny, and in the case



of one or two species, positively forbidding-looking flowers. It needs a lively imagination, in conjunction with a generous disposition, to see beauty in the plant called the Black Calla, for instance. With botanists this is *Arum arisarum*. If the reader has his curiosity excited by seeing a plant in a catalogue under the name of Monarch of the East, and is led to wonder what sort of thing it can be, let him calm himself with the information that it is neither more nor less than one of these Arums, and that its name is cornutum.

The Arums form a nectar which has a most exhilarating effect on small winged insects. Sad to say, they become inebriated upon it. Still worse, the first thing that they do when they recover from the effects of their debauch is to hasten back for more strong liquor.

*Tuberous-rooted Begonias.*—Begonias of the tuberous-rooted section are immense favourites with all lovers of flowers, alike for greenhouse and flower-garden decoration; and it would be strange if it were otherwise, in view of the striking beauty of their flowers. Who that has seen a group of modern tuberous Begonias exhibited at an important flower-show by one of the leading growers can ever forget the sight? It is something to live in the memory for all time. The singles are beautiful enough, with their great flowers borne in abundance well above the thick, massive leaves, and with their brilliant and varied colours. But the doubles are even more strikingly handsome. The flowers differ greatly in form. Some are like huge Camellias; others resemble Water Lilies (*Nymphaeas*). Some are of the form of large Hollyhocks; others as massive and rich as Paeonies. The range of colours is not complete, because we have not yet got blue, but it is very considerable. There are whites as pure as new-fallen snow, yellows of various shades, beautiful blush and Picotee-edged flowers, delicate pinks, soft rose shades, brilliant salmon and orange hues, glowing scarlets, and deep, rich crimsons.

The tuberous Begonia is quite a modern flower. Although the

species had no particular importance in themselves, as parents they proved invaluable. Their progeny have been intercrossed until all trace of the original plants has been lost, and we have a new race. The value of the tuberous Begonias as flower garden plants is limited by the fact that they do not flourish in hot, dry weather. Beds of them are apt to be thin and ineffective in a scorching summer. The plants do not absolutely die out, and when the cooler weather of late September and early October comes they spread and bloom freely; but as far as the main part of the summer is concerned they must be written down as poor. The contrast in a damp, cool summer is remarkable. Then the plants grow strongly, fill out the beds, and give a beautiful display of bloom by the end of July at the latest.

Since so much turns on moisture, the admirer of Begonias will probably ask himself whether he cannot ensure success, dry summer or no, by making provision for supplying the necessary humidity. Yes, he can certainly do a great deal. He can deepen and manure his soil for one thing, and if this work is thoroughly done it will go a long way. If he will work the soil two spades deep, and put a thick coat of decayed yard manure about nine inches below the surface, he will have done much to encourage success. Another thing that he can do is to specially prepare his plants in the spring. He can buy his tubers, or take them out of their winter quarters, about the end of March, and place them six inches apart in boxes filled with a compost in which leaf-mould predominates. A situation on a shelf in a greenhouse, or in a frame (with a covering in cold weather if there is no artificial heat), will suit them, and in the course of a week or two buds will show. Never let the soil get quite dry, and the shoots will push strongly. If kept close to the glass they will be short and sturdy, not long and weak. They should have abundance of air to help to keep them healthy. This treatment will certainly bring its reward. By the first week in June the plants will be very strong. A third



thing that the resolute grower can do is to give the plants a good send-off by keeping the soil moist and mulching with short, decayed manure directly they have made a start. Should there be no rain he will be well advised to give an occasional soaking of water, varied with liquid manure, withdrawing the mulching for the purpose, and afterwards replacing it, in order to conserve the moisture by checking evaporation.

All this means a certain amount of trouble, which the average gardener may not consider he has time to take, but which the person who is bent on having a fine bed of Begonias will consider justifiable. Let him recollect that almost everything depends upon getting strong plants and giving them a vigorous push-off. Weak, drawn plants, left to fight their way in poor, thin, dry soil, have little chance; and although they may live they are not likely to give pleasure or satisfaction. Strong or weak they are likely to be at their best at the end of September onwards. If strong they will be objects of brilliant beauty in the cool days of October, and unless a sharp, early frost comes they will be a lovely picture for several weeks. Towards the end of October they will begin to get thin, and they will gradually dwindle away, the flowers slowly fading, and the leaves and stems decreasing in substance. When their beauty is fairly past they may be taken up, the remains of the growth removed, and the tubers stored in a dry, cool, frost-proof place until spring.

Plants which are to be grown in pots may be started in the same way as those for the garden, and potted in May. Pots six inches or seven inches across will be suitable. The compost may consist of three parts fibrous loam, one of leaf-mould, one of decayed manure, and a large potful of coarse sand to every peck. It should be in a moist, but not sodden state when used, and should be pressed well down round the tuber and roots. With water supplies as needed, adequate staking, and abundance of air, the plants will thrive.

As far as varieties are concerned, the cost of tubers has to be taken into account. One can buy new, named varieties, just as one can of all special flowers, but they may cost several shillings each. Older sorts may cost ninepence or a shilling a tuber. If the grower does not want named varieties he will be well advised to buy mixtures from a reliable merchant or nurseryman. Very good "strains" are procurable for four or five shillings a dozen. A still cheaper way of getting a stock of plants is to sow seeds, but an early start must be made, in heat, if flowering plants are to be had the same year. January is not too early. If the sowing is deferred until the spring, the best that the grower can do is to get tubers for flowering the following year. It is necessary to exercise great care in the sowing, as the seed is expensive, and almost snuff-like in its fineness. The surface soil for its reception must be reduced to very small particles—in fact, it is a good plan to compose the surface of silver sand, and after very carefully brushing the seed over it from the palm of the hand with a fore-finger of the other, to merely cover with a few light flakes of clean moss. A square of glass, shaded with paper, may be put over the receptacle, which should be stood on a shelf in a warm greenhouse. If watering is required before the seeds germinate, it should be done by dipping the vessel nearly to the brim in water, which will rise through the drainage hole to the surface of the soil. Directly the plants appear the moss and the paper shading must be removed. The seedlings may be pricked off two inches apart in boxes when they are about an inch high, and potted singly from these when they have grown large enough to touch each other. They will grow slowly in their early stages when forming the tuber, and it will perhaps only be some of the strongest plants which will be forward enough to bloom well the first year. However, if a good supply of strong tubers be got one should be satisfied, because they will be all ready for the next year's flowering.



The following are good and inexpensive varieties:—

## SINGLE.

*Grant Allen*, crimson.  
*Prince of Orange*, orange.  
*Starlight*, salmon.  
*Exquisite*, pink.  
*Sunshine*, yellow.  
*Snowdrift*, white.

## DOUBLE.

*B. R. Davis*, crimson.  
*H. Russell*, scarlet.  
*Claribel*, salmon.  
*Beauty of Belgrove*, pink.  
*Rev. G. Lascelles*, yellow.  
*Lord Roberts*, white.

*Belladonna and Guernsey Lilies*.—There are very few bulbous flowers more beautiful than those charming twins, the Belladonna and Guernsey Lilies, the former of which bulb-dealers may offer under the name of *Amaryllis Belladonna*, and the latter of *Nerine sarniensis*, or under their popular names. Both have rosy flowers, and those of the Guernsey Lily are particularly brilliant—in fact, they seem to positively sparkle. The bulbs soon start growing in autumn, like those of the white Madonna Lily, and in the case of all the members of this lovely trio the dealer likes to have the order early, so that he can put it on a special file, and execute it the moment the bulbs come in. He does not like to have to conduct a long correspondence after his cases have arrived, for all the while it is going on the bulbs are growing, and he is afraid of their getting spoiled. It is to the buyer's interest to humour the dealer in this matter, and the order for the Lilies may go in when the earliest of the bulbs for the autumn supply, such as White Roman Hyacinths, are requisitioned. It is wise to choose a sheltered position for the Belladonna and Guernsey Lilies, if possible, or a border under a wall with a southern or western aspect, and to provide a well-drained, loamy, friable soil. If they establish themselves in such a position, and are protected with dry litter in hard weather, they are almost sure to flower well every year; and if they do, nothing in the garden is likely to be more admired.

*Calochortus (Mariposa Lily)*.—Many amateurs grow bulbs for years without ever learning the full resources of the family. They

often completely miss some exquisite plant, and find it difficult to credit that such a beautiful thing could exist without their becoming aware of it, when at last they make its acquaintance. The *Calochortus* might easily furnish such an example, for it is not often seen, and yet it is beautiful in the extreme. Perhaps the principal reason why it is not grown in nearly every garden is that it is not quite so hardy and accommodating as our most popular bulbs, such as Daffodils. It cannot be relied upon to thrive in a damp, heavy soil, nor in a cold place. It luxuriates in a warm border under a sunny wall, where the soil is light and sandy. With protection in the form of litter in winter it may live for several years in such a spot. The species *albus*, *speciosus*, *venustus* and *pulchellus* are all extremely pretty, and the bulbs, which may be bought early in autumn, are not expensive. They are quite suitable for pot culture, and may be treated like Hyacinths.

*Chionodoxa* (*Glory of the Snow*).—This ranks with the smaller bulbs, such as Scillas and Snowdrops. There are several species and varieties, all blue, blue and white, or white, the best known being *Luciliae*, *Tmolusii*, *grandiflora*, and *sardensis*. The first of these is the true *Glory of the Snow*. It has delightful blue flowers with a white centre, grows to about the same height as the Snowdrop, and is in bloom at the same time. It is a hardy, attractive, inexpensive, and accommodating little bulb, and may be represented in gardens where such little gems are loved.

Christmas Roses will be referred to under Herbaceous Plants, and *Colchicum autumnale* under Rockery Flowers. Both are sold by bulb-dealers.

*Crinums*.—Lovely bulbs are the *Crinums*, and if they were fully hardy, which they are not, it is quite certain that they would be largely grown in gardens. As it is, only those people who can afford to take risks will grow them out of doors. Like the *Belladonna Lily* they can only be relied on in warm, sheltered places, and in light, sandy soil. Cold, wet soils and exposed situations



are unsuitable. *Powellii* and *capense*, the former rose, the latter pink, are two of the best for the open air.

*Crocuses*.—The charm of many of the species of *Crocus* will be referred to (see *Rockery Flowers*), and bulb specialists are quite likely to make a little collection of them. Whether that be done or not, the value of the cheap Dutch *Crocuses*, which bulb-dealers sell for a few shillings a thousand, will not be forgotten by the majority of flower gardeners. Very hardy, very cheerful, very easy to manage is the little *Crocus*. The Golden Yellow is particularly bright, and it has comparatively large flowers. It has a very enlivening effect when flowering in a broad mass. There is a whole grassy hill of it at Kew, where thousands of flowers sparkle in the March sunshine. Unfortunately, the birds are very prone to pulling the flowers to pieces. Apologists for the feathered marauders say that the latter are merely in pursuit of insects or water, but that does not put the flowers together again. Lines of black thread should be stretched above the flowers as a protection. Oddly enough, the birds rarely attack the white, purple, and lilac *Crocuses* when there are yellow ones near. As a change from *Crocuses* they will pull *Primroses* to pieces, and again it is yellows which fare the worst. This shows that the birds have a sense of colour. Why, though, do they consider that yellow *Crocuses* contain more insects or more moisture (which is it, apologists?) than the other colours?

The *Crocuses* are charming in lines to beds and borders, also in grass and under trees. They are so cheap that they can be planted in any quantities, and if the grower wants somewhat larger flowers than the common, unnamed blue, white and striped yield, he may buy larger varieties under name at a cost which, though a trifle higher than for the others, is still very low.

*The Crown Imperial* (*Fritillaria Imperialis*) is a very handsome plant with large yellow, orange or red flowers, and it will thrive in most soils. The Snake's-head Lily (*meleagris*) is also a *Fritillary*, and a very interesting plant, but it has none of the

showy beauty of its larger sister. It is cheap, and easy to manage, thriving nearly anywhere.

*Daffodils and Narcissi.*—The true, typical Daffodil is the Lent Lily, the botanical name of which is *Narcissus pseudo-narcissus*. Popularly, Daffodils are Narcissi and Narcissi Daffodils, but to be correct we may only speak of those Narcissi as Daffodils which have long central tubes or trumpets. Every grower of Narcissi will have noticed that the flowers are divisible, broadly, into two parts: an outer ring of petals, called perianth segments, and a central tube called the crown. In the big sorts like Emperor and Empress the tube or "crown" is elongated into a trumpet, and becomes the dominant part of the flower; these are true Daffodils—glorified Lent Lilies. In others, the tube diminishes into a small saucer which finds its most minute proportions in the Poet's Narcissus, poeticus; these are not Daffodils. To claim the popular name of Daffodil the crown must be as long as the perianth segments.

Wanting some plan of classifying Narcissi, the botanists adopted that of comparing the length of the crown with that of the perianth segments, and put them into three classes. The first, the Large-Crowns (*Magni-coronati*), have flowers in which the crown is as long as, or longer than, the outer petals. The second, the Medium-Crowns (*Medio-coronati*), have flowers in which the tube is only about half the length of the segments. The third, the Small-Crowns (*Parvi-coronati*), have merely flattish, saucer-like crowns. The classification is not a very satisfying one, and as the different subsections have been crossed one with another there is a good deal of confusion. But it need not worry ordinary growers. The tangle may be left to the specialists, who will perhaps unravel it some day.

The origin of the word "daffodil" is somewhat curious. It is derived from the Greek *asphodelus*, through the Old French *asphodile*, and the Middle English *affodile*. The addition of the "d" as a prefix was doubtless due to casual misspelling. Of



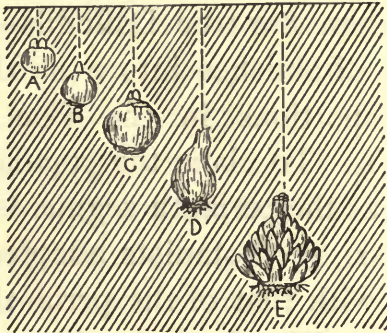
course there is a genus of plants called *Asphodelus*, popularly *Asphodel*, and its members have the best right to the name *Daffodil*, which, however, belongs to a plant of a different botanical order.

Poets have made much use of the *Daffodil*, and if a name is anything, poeticus is the true poet's *Daffodil*, but that is certainly not the flower which Shakespeare had in mind when he wrote of

"Daffodils, that come before the swallow dares  
And take the winds of March with beauty,"

because they do not flower until late April or May. He must

have referred to the *Lent Lily*, which is an early bloomer, indeed all the trumpets or *Large-Crowns* flower early. An interesting and beautiful member of the *Large-Crowns* class is *Bulbocodium* or *Corbularia*. The latter name springs from the likeness of the crown to a basket (note also "corbel" in architecture)—*corbularia* meaning a small basket. *Bulbocodium* is yellow, and there is a charming white variety called *monophylla*



DEPTH AT WHICH TO PLANT DIFFERENT BULBS

A, Snowdrops, Crocuses, or Scillas; B, Jonquils, Tulips, &c.; C, Hyacinths; D, Narcissi, Gladioli, &c.; E, Lilliums.

(one-leaf). In these pretty *Daffodils* the outer segments are quite subordinate to the crown. The *Medium-Crowns* succeed the *Large*, and are a most charming class. They are sometimes called *Chalice Daffodils*, owing to the resemblance of the crown, pointed out by that rare old writer *Parkinson*, to the wine chalice at the *Lord's Table*. They are also spoken of as the *Incomparables* (*Narcissus incomparabilis* of botanists).

The *Small-Crowns* (*poeticus* and its varieties) bloom last. It is claimed for the *Poet's Narciss* that it is the legendary flower which sprang from the body of vain *Narcissus*, who

"Died to kiss his shadow in a brook."





CHRISTMAS ROSES (*Hellebores*) AND GLORY OF THE SNOW (*Chionodoxa*)

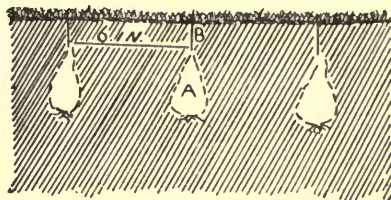
By Beatrice Parsons



Handwritten characters and symbols, possibly a code or cipher, arranged in a grid-like pattern. The characters are small and densely packed, forming several columns and rows. Some characters resemble letters, while others are more abstract symbols.

Small red handwritten mark or signature.

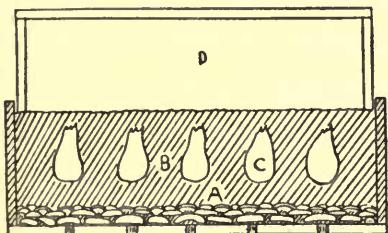
Be that as it may, it is an old and much-loved flower. The crown is a mere orange rim, hence the name "pheasant's eye" which is often applied to it. The bunch-flowered or Polyanthus Narcissi (*Narcissus Tazetta*) are also Small-Crowns, and are late bloomers when grown out of doors, but they are almost exclusively cultivated under glass, where two varieties, Paper White and Double Roman, flower early.



PLANTING BULBS IN GRASS

A, bulbs; B, opening through turf. Bulbs six inches apart.

The Daffodil lover does not get out of his difficulty about classification as soon as he has learned about the three Crown sections, because when he opens the books and catalogues he reads of such groups as Burbidgei, Leedsii, Humei, and Barrii. These are hybrids, and take their names from the hybridists who have produced them. Hybridisation is still going on actively, and it may end in so complete a breaking up of group distinctions that a totally new system of classification will be called for.



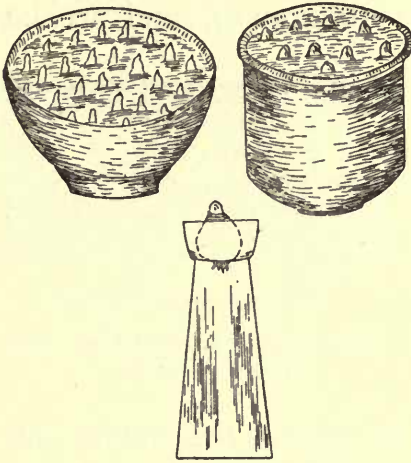
NARCISSI IN BOXES

A, drainage; B, compost; C, bulbs; D, empty inverted box.

Let us leave that thorny subject, and find pleasure in the reflection that if the multiplication of hybrids is likely to worry classifiers, it will at all events be good for garden-lovers, because it will give them more beautiful varieties with which to work. Fortunately, the Daffodil is an easily grown plant. It will thrive in most soils, but luxuriates in a deep, cool, substantial medium. It may be used in beds, borders, woodland and grass with equal effect. The bulbs may be planted double their depth in September, October, or November. If the soil is fertile increase will be rapid and propagation may be effected by dividing the clumps.



The Narcissi are also charming for pot culture, and may be treated the same as Hyacinths. A method of growing them which is rapidly increasing in favour is to put them in undrained jars of green ware, in peat-moss fibre. They thrive admirably when thus grown, and are beautiful for rooms.



BULB-GROWING IN GLASSES, AND IN MOSS FIBRE IN VESSELS WITHOUT DRAINAGE

Receptacles suitable for Narcissi, Tulips, and Snowdrops.

They have a special enemy, called the Narcissus fly (*Merodon equestris*), the maggots of which attack the bulbs and cause them to decay. Any plants that are found to be attacked should be burned, in order to prevent the spread of the enemy.

The number of Daffodils is so enormous that the task of making a selection is a very difficult one, but the greater the number the greater the necessity for making the attempt to reduce it, as a help to bulb-lovers who are not acquainted with the best varieties. The following tables may be found useful. All are cheap, unless a note to the contrary is added.

#### LARGE-CROWNS.

##### *Yellow Trumpets.*

Ard Righ.	Glory of Leyden.	King Alfred (dear).
Bulbocodium.	Golden Spur.	Maximus.
Cyclamineus.	Henry Irving.	Obvallaris (Tenby Daffodil).
Emperor.	Johnstoni Queen of Spain.	Van Waveren's Giant (dear).

##### *White or Cream Trumpets.*

Albicans.	Madame de Graaff (dear).	Pallidus praecox (early).
Cernuus.	Moschatus.	William Goldring.

##### *White and Yellow Trumpets (Bicolors).*

Duke of Bedford (dear).	Madame Plemp.	Princeps.
Empress.	Michael Foster.	Scoticus
Grandis.	Mrs. Morland Crosfield (dear).	Victoria.
Horsefieldii.	Mrs. Walter Ware.	Weardale Perfection (dear).

*Double Trumpets.*

Capax plenus.		Lobularis plenus.		Telamonius plenus (Van Sion).
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MEDIUM-CROWNS.

Autocrat.		Lucifer (dear).		Red Coat.
Barrii conspicuus.		Leedsii Duchess of West-		Red Star.
C. J. Backhouse.		minster.		Sir Watkin.
Gwyther.		M. Magdaline de Graaff.		Stella Superba.
Juncifolius (Rush-leaved).		Odorus rugulosus (sweet).		Triandrus (Angel's tears).

*Double Chalice-flowered.*

Butter and Eggs.		Orange Phoenix (eggs and bacon).		Sulphur Phoenix (codlins and cream).
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SMALL-CROWNS.

Biflorus.		Poeticus.		Poeticus plenus (double or
Burbidgei Ellen Barr.		„ Almira.		Gardenia flowered).
„ John Bain.		„ Cassandra (dear).		„ poetarum.
Jonquilla (Jonquil).		„ ornatus (early).		

*Polyanthus Narcissi.*

Bathurst.		Grand Monarque.		Soleil d'Or.
Double Roman (early).		Paper White (early).		White Pearl.

CHEAP AND PRETTY NARCISSI

It may be well to supplement the foregoing classified lists with a general one prepared specially for the benefit of those amateurs who want to plant in large quantities, and cannot afford dear sorts. Happily, some of the cheapest are also among the best. English-grown bulbs are offered at marvellously low prices in autumn, and buyers might look out for advertisements of them in the gardening papers. The list includes both early and late flowering sorts.

Barrii conspicuus.		Henry Irving.		Poeticus ornatus.
Butter and Eggs.		Horsefieldii.		„ plenus.
Emperor.		Obvallaris.		Sir Watkin.
Empress.		Pallidus praecox.		Telamonius plenus.
Golden Spur.		Poeticus.		



*Dog's Tooth Violets* (*Erythroniums*) will be mentioned under Rockery Flowers; they are pretty and cheap bulbs, procurable in autumn.

*Freesias* are favourites with everybody, and their numbers look like being increased by hybrids and cross-breeds, for skilled men are at work upon them, crossing the species and varieties. One excellent hybrid, *Chapmanii*, has already been raised by a Sussex florist, who crossed *refracta alba* with *aurea*, and then re-crossed with the best of the offspring. In their early days of scarcity, new *Freesias*, like all other new plants, will be relatively expensive; but the flower gardener who has to content himself with *refracta alba* will suffer no hardship, for it is a beautiful flower and deliciously scented. Flowers can be got at midwinter by potting bulbs in late summer. Lovers of the plant take care to get successions of it by potting bulbs at intervals. The soil recommended for *Hyacinths* will do. Half-a-dozen bulbs may go into a medium-sized pot. Some growers plunge the pots in fibre the same as in the case of *Hyacinths*, but it is not necessary, and if it is done the plants should be examined at short intervals, as they are apt to push growth very quickly in a mild spell of weather, and if the shoots run into the fibre they will be greatly weakened. After the plants have flowered they may be gradually dried off, and when at rest the bulbs may be taken from the soil and spread in a dry, sunny spot for a few weeks; this will ripen them thoroughly, and insure them flowering well the following season.

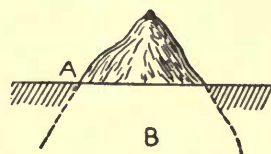
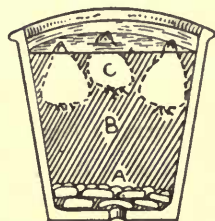
*Galtonia*, sometimes grown under the name of *Hyacinthus candicans*, is a tall, white-flowered bulb, which can be bought for about a penny (at a still lower rate in quantity), and is well worth including.

*Gladioli* will be referred to under Herbaceous Plants, and it need only be said that they are among the most beautiful of the plants of which bulb-dealers supply roots in a dry state in autumn, winter, and spring.

*Hyacinths* are loved by everybody. The poorest townsman knows what "iercins" are, because he sees them in large beds in the parks of London and provincial cities. The peasant widow grows some in water for the window of her little sitting-room. In pots, in glasses, in the soil of the open garden, the Hyacinth is equally at home.

We speak of the Hyacinth as a Dutch bulb, not because it originated in Holland, for it is an Eastern plant, but because it is one of the plants specially cultivated on a vast scale for commercial purposes in Holland. The land between Leyden and Haarlem is particularly suited to Hyacinth culture. The sand is cut away until a level a few feet above the peat-bed is reached, and a site is thus secured which is well supplied with sub-soil moisture—an essential to successful cultivation. The sand is enriched with cow manure. Any cool, moist soil in England will grow Hyacinths well, and people make a serious mistake who suppose that it is sand which is the principal reason for the success in Holland, and consequently attempt to grow Hyacinths in sand in Great Britain, without a moisture-holding stratum beneath it. We have grown the finest of Hyacinths out of doors in the south of England, but it was not in dry sand; it was in cool, moist clay. Lovers of Hyacinths should remember that water is the life blood of these plants, and never stint them for moisture, whether indoors or out.

For greenhouse decoration, large, sound bulbs, firm at the base, should be put into 5-inch pots in October or November, in a compost of fibrous loam three parts, leaf-mould and decayed manure one part each, and a tenth of the whole of coarse sand. The soil should be moist when used, and pressed into a fairly firm, but

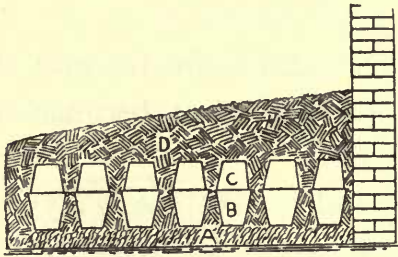


POTTING HYACINTHS

Upper figure.—A, drainage; B, compost; C, bulbs.  
Lower figure.—A, shows crown of Hyacinth B, above the surface of soil in pot.



not actually hard, mass over a drainage of crocks and moss. About half an inch of the top of the bulb should be left exposed. The pots may be put together in a group in the garden on a bed of cinders, and covered a few inches deep with cocoa-nut fibre refuse,

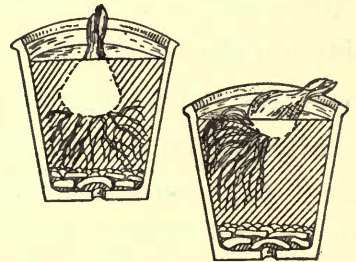


BULBS IN POTS UNDER SAND

A, bed of ashes; B, pots containing bulbs; C, empty inverted flower-pots; D, sand.

in order to check top growth until roots have had time to form. In from six to ten weeks, or when the top growth is of the size of a filbert, they may be brought into the greenhouse. When the pots are full of roots frequent supplies of water will be needed, and liquid manure may be given with advantage. The flower spikes will need staking.

If they are to be grown in glasses care should be taken to choose smooth, symmetrical bulbs, which will fit the necks of the receptacles. The water may come close to the base without touching it. One or two pieces of charcoal will help to keep it pure; should it become thick and smelly it will be wise to pour it away and substitute fresh, but this should be done very carefully, so as to avoid injuring or drying the roots. The glasses should be kept in a dark cupboard until the roots reach the bottom of the receptacle. A wire support, looped at the base to clasp the neck of the bottle, will be necessary to keep the plants from toppling over.



HYACINTHS IN POTS

Upper figure.—Bulb growing freely when properly potted and watered. Lower figure.—Bulb lifted out of the soil by the roots when improperly potted, and not watered to settle the soil at the outset.

Hyacinths for the garden should be planted as early as possible in November, and may be covered three inches deep. The more deeply the soil is dug, and the more thoroughly it is broken up, the more likely the plants are to thrive. Light soil must be particularly well worked, and it should be manured liberally. Heavy

land will not need much manure. It is wasteful to dot odd bulbs about the garden, because they produce no particular effect. Clumps should be formed, and if they are thought to be a little stiff they may be associated with Chalice Daffodils, which are generally in bloom at the same time.

The following are good Hyacinths :—

<i>Dark Blue.</i>	<i>Dark Red.</i>	<i>White.</i>
Grand Maitre.	Robt. Steiger.	La Grandesse.
King of the Blues.	Von Schiller.	Grandeur à Merveille (blush).
<i>Light Blue.</i>	<i>Pink and Rose.</i>	<i>Yellow.</i>
Lord Derby.	Fabiola.	King of the Yellows.
Grand Lilas.	Norma.	

*Doubles.*

*Grootvorst*, red. | *Laurens Koster*, blue. | *La Tour d'Auvergne*, white.

*Muscari*, which are April bloomers of low growth, are commonly spoken of as Grape, Feather or Musk Hyacinths, according to the species. Thus, *Muscari botryoides*, blue, is the Grape Hyacinth. It is a pretty plant, and it has white, pale-blue and flesh-coloured varieties. *Muscari comosum monstrosum* is the Feather Hyacinth; it is also blue. *Muscari moschatum*, blue and yellow, is the Musk Hyacinth. There are other good *Muscari*s besides these, notably conicum Heavenly Blue, which grows freely, especially in cool, moist soils, and spreads rapidly.

*Iris*es will be referred to under Herbaceous Plants. Let it be remembered that many of the most charming are true bulbs. The English and Spanish, which are so beautiful and yet so cheap, are bulbs.

*Ixias* are not often grown out of doors, as they are not fully hardy. If so cultivated they ought to have a warm spot, and be protected with litter in winter. They are undeniably pretty, with their graceful spikes and bright flowers; and if not grown out of doors a few might be tried in pots, being given the same treat-



ment as Hyacinths, except that several bulbs may be placed in each pot. *Flexuosa*, pink; *speciosa*, crimson; and *viridiflora*, green, are three attractive sorts.

*Lachenalias* are most attractive and distinct bulbous plants. Many gardeners grow them in baskets suspended from the roof of warm greenhouses, and they are used in this way at Kew, where they form charming companions to Gloire de Lorraine Begonias and other plants in March. The grower procures a wire basket, lines it with moss, fills it with similar soil to that advised for Hyacinths, and presses bulbs into it all round. Two of the best species are *Nelsoni*, yellow, spotted leaves; and *tricolor*, green, red, and yellow, also with spotted leaves.

*Leucojums* (*Snowflakes*) are favourites with bulb specialists. The species *aestivum* is called the Summer Snowflake, but it is rather a late spring than a summer bloomer. It grows about eighteen inches high, and has large white flowers. The Spring Snowflake (*Leucojum vernum*) flowers a few weeks earlier, and also has white flowers tipped with green. It is not so tall as *aestivum*. There are two pretty varieties of it, namely, *carpathicum* and *Vagneri*. The former has yellow-tipped flowers, and the latter is more free-flowering than the type. The Snowflakes are very pretty, both in the border and rockery, and they are easy to grow. They may be purchased and planted in autumn.

*Liliums* are the most majestic of all bulbous plants, and few are the gardens which do not contain some representatives of this noble genus, either grown out of doors or in pots. They are valuable for every gardening purpose. The Lilies are worthy of being specialised if any flowers are, and they will yield a rich harvest of interest and beauty to whoever makes a study of them. They come from different parts of the world, and they vary greatly in habit, size of bloom, and colour. Some are powerfully perfumed. With few exceptions they have large flowers, which are distinguished by great substance and exquisite purity. In the



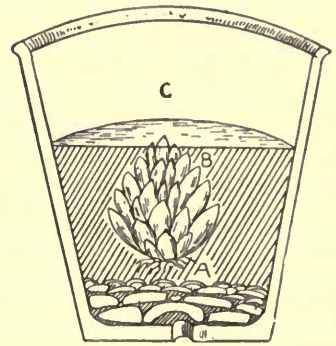
MAY FLOWERING TULIPS  
By Margaret Waterfield



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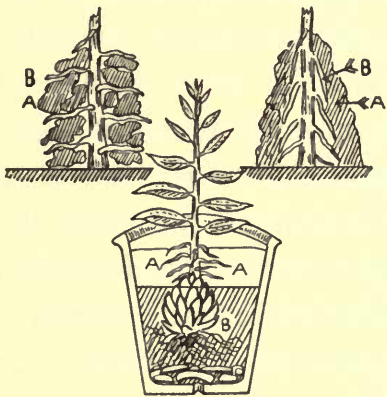
main it may be said of them that they are easily grown, but they are not entirely without their likes and dislikes, with which the prudent grower will take care to make himself acquainted for their and his own benefit. Some like sun, and others shade. A few, while robust and hardy, do best when planted in such a position that they have spring shelter for their young growths. Some do best in peaty and others in loamy soil. These peculiarities will be pointed out in the present notes; but first a few general remarks.

Liliums that are to be grown in pots for greenhouse and conservatory decoration should have a relatively deep and narrow pot provided for them, because they differ from most bulbs in producing a mass of roots from the growing stem, just above the bulb, and there should be space for putting on top soil when these roots come. Such pots are made, but owing to the inconvenience of having flower-pots of different shapes and odd sizes, they are not often used. If an ordinary flower-pot is employed the grower must provide for the stem-roots in one of two ways: by putting the bulb very low down in the pot, or by potting at the usual level and placing a high collar inside the rim of the pot when the time arrives for applying fresh soil. The latter is the better plan. It is not desirable to put the bulbs very low in the pots, because it brings them close to the drainage, which contains very little nutriment for the lower



POTTING LILIUMS

A, drainage; B, bulb in soil; C, space for topdressing.



TOPDRESSING LILIUMS

Top Left-hand Figure: Right Method.—A, lumps of turf; B, stem-roots. Top Right-hand Figure: Wrong Method.—A, fine soil and lumps pressed down carelessly; B, stem-roots broken. Bottom Figure.—A, A, space to be topdressed; B, original compost.

soil. The latter is the better plan. It is not desirable to put the bulbs very low in the pots, because it brings them close to the drainage, which contains very little nutriment for the lower



roots. On the other hand, there is no objection whatever to an elevated ring at the top. It may be made of a strip of zinc, and may extend two or three inches above the top of the pot, thus permitting of quite a liberal addition of soil. The stem-roots will feed in it, and the plants will benefit greatly.

It is not every *Lilium* that is suited for pot culture. The huge giganteum, for instance, is altogether too forceful a grower. The commoner, hardy kinds, such as the Tiger Lily (*tigrinum*), *croceum*, and *chalcedonicum*, look best out of doors. But such refined Lilies as *longiflorum* (long-flowered) and its varieties, and *speciosum* or *lancifolium* (which forms the subject of one of the coloured plates), and varieties, are admirable for the purpose. The Madonna Lily (*candidum*), *elegans* (*thunbergianum*), and its varieties, and the Golden-rayed Japanese Lily (*auratum*), are often grown in pots with success. The potting should be done as early in autumn as the bulbs can be got, and the soil and general treatment may be the same as for Hyacinths. The bulbs of *auratum* purchased in autumn will be English ones, and if large, firm, and solid, none can be better. The imported *auratums* are much cheaper, but they do not arrive until winter or spring; and do not, as a rule, give such good results as the English bulbs. Perhaps the most popular Lilies for pot culture are the Easter or Bermuda Lily, which is a variety of *longiflorum* called *Harrisii*, and the variety of *speciosum* known as *album Kraetzeri*. Both are pure white, and are largely grown for market. It is well to pick off the stamens of the latter before the pollen becomes ripe, otherwise it will scatter and stain the flowers.

The most popular garden Lily is certainly *auratum*, and the florists and collectors have given us some beautiful varieties of it. The species, as is well known, has white flowers, with yellow stripes and red dots. In the variety *rubro-vittatum* the yellow stripes become crimson, and this is a very distinct and beautiful variety. *Wittei* is pure white, and *Virginale* is marked only by a faint

yellow stripe; both are exquisitely beautiful. *Platyphyllum* is distinguished by its broad leaves. The Golden-rayed Lily and its bevy of beautiful daughters do not enjoy a stiff, heavy, wet soil, nor do they care for sand; they like loam, and they like peat. They thrive best among *Rhododendrons*, if not overgrown, because not only does the loam-peat compost of which the beds are composed suit them, but the spring shelter is very grateful.

The magnificent *giganteum*, which may attain to a height of ten or twelve feet, is a very distinct Lily, with heart-shaped leaves. It loves a moist, peaty, or loamy soil. It is necessary to have a constant succession of bulbs coming on, because those that flower one year are incapable of blooming the next, and the offsets which they leave will not be strong enough to flower unless they are exceptionally well suited by the soil and site.

The most showy of the *Liliums* are the Turk's Cap (*Martagon*), the Panther (*pardalinum*), the Orange (*croceum*), and *chalcedonicum*. These are cheap, easily grown kinds, succeeding almost anywhere.

A few special sorts are *Brownii*, *Hansonii*, *Henryi*, *Humboldtii*, *Krameri*, *rubellum*, *sulphureum*, *testaceum*, *umbellatum*, and *Washingtonianum*. There are varieties of some of them, differing in colour from the parents.

In the case of the *Liliums* grown from home bulbs it may be taken as a rule that the earlier they are planted in autumn the better, in fact, as soon as the flower stems die back, because the bulbs begin to form new roots at once. It is particularly necessary in the case of *candidum*. With respect to imported bulbs, inasmuch as they sometimes get dry in transit, it is a good plan to embed them in moist cocoa-nut fibre refuse for a few days before potting or planting, in order to freshen them.

*Liliums* may be propagated by offsets, if these form, or by partially embedding scales taken from the outside of fresh, healthy bulbs in moist, sandy soil.



The plants do not escape enemies, and the fungoid disease which attacks candidum is only too well known. Change of ground, avoidance of richly manured soil, and the shaking up of the bulbs in a bag of dry flowers of sulphur, may all be tried as remedies.

*The Lily of the Valley* is not a *Lilium*, but a *Convallaria*, specific name, *majalis*. It is a modest little flower for so long a botanical name. We love the Lily of the Valley, firstly, because it is very pretty; secondly, because it is very sweet; and thirdly, because we can get flowers of it in the winter, and practically all the rest of the year as well. Science has come to the aid of the grower with this charming denizen of British woodlands. The lower part of the plant consists of a thickened stem, called a "crown," which contains the flowers and leaves, like the bulb of a Hyacinth. The large market grower takes a number of these crowns while they are dormant, and puts them in a store, which is kept at a low temperature. The cold is not extreme enough to injure the crowns, but is sufficient to keep them at rest, and they remain quiescent until they are put in a warmer place.

The home grower will not possess a cold store, and therefore cannot have Lilies of the Valley in flower for the greater part of the year, but he can buy crowns in autumn or early winter, and get flowers from them in about twenty days if he subject them to strong, moist heat. Unless very early flowers are wanted for a particular purpose a handful of the crowns may be put together loosely in a five- or six-inch pot, in soil similar to that advised for Hyacinths, and plunged in fibre for a few weeks, as recommended for those popular flowers. This treatment insures leaves and flowers coming together, whereas under hard forcing the flowers may come in advance of the foliage. One has to be careful in buying these crowns. Bundles of them must not be picked up at auctions merely because they are cheap, as they may be thin and pointed, in which case they do not contain flowers.

What are known to dealers as Berlin crowns, and which are as thick as the little finger, generally bloom.

For late flowering in large pots, and also for planting out of doors, the "clumps" offered by dealers are excellent. They contain several crowns, some of which may bloom the first year and others the following one. A cool, shady position is desirable. The plants do not mind a light soil so long as they have shade, but they will not thrive on a sun-scorched sandbank. The varieties Victoria and Fortin are both superior to the common in size of bloom, if not in sweetness.

*Ornithogalums* are somewhat burdened with names—in fact, long names seem to "run in the family." For instance, three of the best-known species are called respectively *umbellatum*, *arabicum*, and *longibracteatum*. The first of these is the pretty, white, May-blooming plant, growing about a foot high, called the Star of Bethlehem. It is so well known by its popular cognomen that fortunately we can dispense with the botanical name. It would be well if the Arabian species also had a homely name to help it along, for it is a pretty thing, and fragrant withal. It is white, with a black central boss (the ovary), which gives it a distinct appearance. It is not quite hardy, and is best grown in pots. The third species named is a not uncommon window plant, and is conspicuous for its immense bulb, which stands quite above the soil. It has greenish-white flowers.

*The Ranunculus* is a tuber, strictly speaking, not a bulb, but it is one of the bulb-dealer's stock items. Perhaps he had more demand for it in years gone by than he has now, for once upon a time it was a "florist's flower," like "Bizarre" Tulips and "Flake" Carnations. It is not so now. Like the Verbena, it has fallen from grace. It is a brilliant flower, and embraces a great variety of colours, but it lacks freedom, grace, and suitability for cutting. It is, in short, a frigid beauty.

The tuber is a very singular structure, unlike that of any



other well-known "bulb." It consists of a number of claws springing from a flattish plate, which is the point from which the growth starts; the claws, therefore, must go downward. The tubers are procurable in autumn, and may be planted then or towards the end of winter, about an inch deep. If planted in autumn litter or bracken ought to be spread over the bed. They will thrive in most kinds of soils, but those growers who want to have them in perfection will take care to work the ground well, and to add leaf-mould, road grit, and loam if available, if the soil is very stiff. Several strains are offered by dealers, and the Turban and the Persian may be chosen, although the French are larger. Tubers can be bought in mixture, or varieties can be got under names. They flower in late spring and early summer.

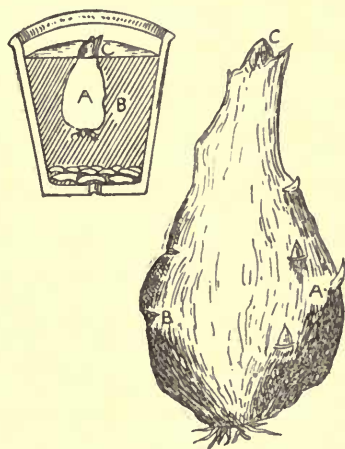
*Scillas* are very modest flowers, but they have their uses. *Sibirica*, the blue Squill, is a pretty and serviceable little plant. It blooms, together with its white variety, in February. *Bifolia* is a charming little plant, which flowers in March. There are several varieties of it, including a white (*alba*) and a pink (Pink Beauty). The wild "Bluebell," or Wood Hyacinth, is a *Scilla*, and its specific scientific name is variously given as *nutans* and *festalis*. There are pink and white varieties of this also. It is an April bloomer. The Spanish Squill (*Scilla hispanica*), blue, and its varieties bloom in March. There are several different shades of blue, likewise red, rose, and white. *Peruviana* is a handsome May-blooming *Scilla*, with lilac flowers; there are blue and white varieties. They are not quite hardy, and if grown out of doors must have a sheltered place.

*Tigridias* are not largely grown, but one sometimes sees a bed of them in a park or botanical garden, where they set the lay tongue wagging. There are few flowers brighter and more glowing, and, on the other hand, few more fleeting. The *Tigridia* is here to-day and gone to-morrow. *Pavonia* and its varieties, *aurea*, yellow; *alba*, white; and *conchiflora*, deep yellow, are the best known.

They must have a sheltered place and protection, if they are to be left out of doors all the winter.

*Tuberoses.*—For culture in pots few plants of equally easy culture are more desirable than these, for they produce pure white fragrant flowers. Potting should be done as early in autumn as possible and successively to insure a prolonged supply of blooms. They should be treated similarly to Hyacinths.

*Tulips.*—Hardy, brilliant, easy to grow, the Tulip is one of our most valuable bulbs, and we shall reap a rich reward if we give it a little study and grow some of the best varieties in our gardens. It will give us a vivid blaze of colour if we grow some of the bright varieties in groups or masses, but it will also give us many delicate and dainty little pictures if we choose the softer-hued sorts, and grow them in selected positions with or without a carpet of low-growing plants. The Tulip-“fancier” does not care for either a “blaze” or a “picture”; the only things that interest him are the marking and the form of the flower. This is taking a somewhat narrow view, perhaps, but it must not be condemned unreservedly. The spirit in which a florist approaches a flower is not the spirit of the artist, but it has something to commend it. By setting up a high standard of flower beauty the florist has certainly been instrumental in the production of improved flowers. The fact that he does not know how to make the best use of the material when he has got it, only goes to prove that it takes more than one class of mind to make beautiful gardens. It is necessary for those who work for garden effects to recognise the limitations of florists, and it is particularly so in the case of



POTTING TUBEROSES

Tuber.—A, side shoots; B, side shoots removed; C, crown growth. Small Figure.—A, tuber; B, compost; C, crown of tuber just clear of soil.



the Tulip specialists, because the show bloom is one of the least valuable of this genus for flower-garden decoration. It is a flower of splendid substance, beautiful form, and exquisite markings, but it is not very effective in groups. Those who love it do not grow it as a flower-garden plant really, although they grow it in the flower garden. They make a bed for it, preparing a special compost, if the natural soil of the garden is not of the best. This and all other classes of Tulips love a deep, friable, moist, but not water-logged soil. The fact that they are grown extensively on the sand dunes of Holland must not lead the Tulip-lover to suppose that they will give of their best in pure sand. There is not substance and fertility enough in such soil. The Dutch bulbs are good, but equally good, even better ones, are grown in Lincolnshire, Cambridgeshire, and Kent. The finest bulbs that we ever saw were grown on heavy loam in Kent. They were much larger than the Dutch bulbs, although not quite so clean and bright skinned. Apropos of this, it may be well to say that a clear, bright skin is not the chief standard of merit in a Tulip. The buyer should look first for relatively large size and solidity. The bulbs should be heavy in proportion to their size, and firm. Tulips will grow vigorously and flower gloriously in clay, provided that it is thoroughly friable; but clay in stiff, hard, yellow lumps is not to their taste. Stiff soil can be rendered friable by breaking it up two feet deep, and incorporating road sweepings, mortar rubbish, and ashes with it. The required condition may not come all at once—it certainly cannot be got by the mere waving of a rake—but it will come if perseverance, allied with knowledge, is practised. It is very important to learn when clay soil may be cultivated, and when it is best left alone. It should not be touched when it is very wet. A water-logged site is very bad for Tulips; the soil should be drained. The heavier the soil is in natural texture the less yard manure it will require. Generally a dressing of bone flour and sulphate of potash in equal parts, at the rate of

three ounces per square yard, turned in two or three weeks before planting, will be better than manure fresh from a yard or stable. In the case of light soil a dressing of natural manure, preferably from cowyards, will be an advantage.

There is no doubt whatever that, given good bulbs and well-cultivated soil, Tulips can be grown successfully in almost any garden, whether it be in town or country. The large, sound, well-developed bulb contains everything the grower wants—stem, leaf, and bloom; and it only remains for him to bring them out to the best advantage by providing suitable site and soil. Many people like to grow them in pots, and they succeed under the same treatment as Hyacinths, but three or five bulbs may be grown in a pot instead of one.

Tulips have two great advantages over their sister bulb, the Hyacinth: the growth is more graceful, and the period of flowering, if all the classes are taken into account, is a great deal longer. The latter is an important point. By making a suitable selection we can have Tulip blooms for fully three months. The season opens with a very early section called Duc van Thol, which is succeeded by the Early Dutch, both single and double; with the Darwin and the Cottage Tulips bringing up the rear. We might classify the sections as follows for outdoor flowering: *March bloom*, Van Thols; *April*, Early Dutch; *May*, Darwin and Cottage. The rearguard is the flower of the Tulip army. The Van Thols are pretty enough, and make nice little patches of colour among Scillas, but they only grow a few inches high, and have small flowers. The Darwin and Cottage sections have flower stems two feet long, surmounted by immense blooms.

Inasmuch as the bulbs are cheap, except in the case of special new varieties of the May-blooming section, the Tulip-lover will be wise to grow some of all these classes. He can buy and plant in October or November. It is desirable to plant before the bulbs show signs of growth at the apex. The old bulbs die



after flowering, but new ones form. If the soil is good the largest of the new bulbs will be strong enough to bloom the following year; the remainder will be little offsets that will require a year or two's time to grow to flowering size. It is well to lift the plants after the foliage has decayed, dry and clean the bulbs, and replant in autumn. If the plants are growing in positions where the decaying leaves are unsightly, or if the ground they occupy is wanted for other plants, the flower-stems may be broken off directly the blooms fade, and the plants carefully lifted and transferred to a reserve bed. This tractability on the part of the Tulips encourages the flower gardener to make groups of them in the front of his herbaceous borders, where they interfere with nothing, and make brilliant clumps of colour in spring; and whence they can be moved in early summer if desired.

Some of the species of Tulips are very beautiful, and must not be overlooked. The one shown in the coloured plate, *Clusiana*, with its charming rose-flaked flowers, is only one of several that are worth growing in flower gardens. There is a white variety of it, called *alba*. They are low growers and late bloomers, often flowering as late as June. *Billietiana*, yellow, is a much larger species, and also flowers late. A variety of this, called *Sunset*, is often included in catalogue lists of Cottage Tulips, and is a very fine thing indeed. *Gesneriana* is one of the noblest of the species, and bears huge red flowers in May. Among many varieties the pale yellow one, called *lutea*, is particularly fine. *Greigi*, a dwarf April bloomer, with red or red and yellow flowers, is a popular species. These are a few of the best, but the following are also good: *macrospeila*, crimson with black blotch, two feet high, a May bloomer; *patens* or *persica*, a dwarf yellow species, flowering in May; *sylvestris*, yellow, about eighteen inches high, blooming in May; *Batalinii*, dwarf, lemon coloured; *Leichtlini*, pink and white, dwarf; *linifolia*, dwarf, scarlet; *primulina*, dwarf, red and yellow; *retroflexa*, dwarf, yellow, petals curved

outwards; and vitellina, medium height, yellow. The last five are mid-spring bloomers.

With respect to the sections, the lists of varieties in the bulb catalogues are very long, and apt to be puzzling; we will therefore make selections from them.

MARCH BLOOMERS.

*Duc van Thol*, red and yellow.

„ „ scarlet.

*Duc van Thol*, white.

„ „ yellow.

One or two of the earliest of the Dutch, such as Proserpine, may be in bloom in a mild March.

APRIL BLOOMERS.

Single.

*Artus*, scarlet.

*Bride of Haarlem*, white, feathered scarlet.

\**Brunhilde*, buff, white flames.

*Chrysolora*, yellow.

\**Cottage Maid*, rose and white.

*Crimson King*, crimson.

\**Joost van Vondel*, crimson, flaked white.

\**Joost van Vondel*, white.

\**Keizer's Kroon*, scarlet and yellow.

*Lac van Rhyn*, cherry red with white edge.

\**Le Réve*, pink.

\**Ophir d'Or*, yellow.

\**Pink Beauty*, pink and white.

\**Prince of Austria*, orange.

\**Proserpine*, dark, silky rose.

*Queen of the Whites*, pure white.

*Thomas Moore*, orange.

\**Vermilion Brilliant*, scarlet.

\**White Swan*, white.

*Wouverman*, claret.

Double.

*Blanche Hâtive*, white, early.

*Couronne des Roses*, rose.

*Cramoisie Superbe*, scarlet.

\**Imperator Rubrorum*, scarlet.

\**La Candeur*, white.

*Mariage de ma Fille*, crimson and white.

\**Salvator Rosa*, rose.

*Tournesol*, red and yellow.

\* „ yellow.

*Yellow Rose*, yellow, sweet.

MAY BLOOMERS.

*Annie*, yellow.

*Bridesmaid*, rose and white.

*Buenaventura*, scarlet and yellow.

\**Dainty Maid*, lilac and white.

*Gala Beauty*, scarlet and yellow.

*Golden Crown*, yellow, crimson edge.

*Golden Eagle*, yellow.

\**Herschel*, scarlet.

\**Inglescombe Scarlet*, scarlet.

*Loveliness*, rose.

*Minister Tak van Poortvliet*, salmon.

\**Picotee*, white, rose edge.

*Pride of Haarlem*, rosy red.

*The Moor*, crimson.

\**The Sultan*, maroon.

\* Those marked with an asterisk may be chosen if the full lists are too long.



One may get some very fine Tulips from a good mixture of Darwins, and any one who cannot afford the price of named varieties of May bloomers should try this inexpensive source of getting good late-flowering Tulips.

What are termed florists' Tulips are late bloomers. As we have said, they are flowers for specialists rather than for flower gardeners; but there is no denying their great beauty when well grown, and therefore we will give selections of them. They are divided into four sections: Bizarres, Bybloemens, Roses, and Breeders. The first have yellow-ground flowers; the second white-ground flowers marked with purple; the third white grounds marked with red; the fourth are self- or one-coloured flowers.

<i>Bizarres.</i>	<i>Bybloemens.</i>	<i>Roses.</i>	<i>Breeders.</i>
Dr. Dalton.	Attraction.	Annie Macgregor.	Excelsior.
Dr. Hardy.	Bessie.	Heroine.	Glory of Stakehill.
Masterpiece.	Nulli Secundus.	Mabel.	Mabel.
Sir Joseph Paxton.	Talisman.	Modesty.	Sam Barlow.

Parrot and variegated-leaved are minor sections of Tulips which some bulb-lovers like to grow. The former is a quaint, yet gay section, consisting of some half-dozen distinct varieties. The latter is a replica of certain popular early Dutch varieties; that is, the flowers are the same, but the leaves are marked with yellow or white instead of being wholly green.

## HARDY HERBACEOUS PLANTS

THE old style of flower gardening, with its ribbon borders and tender plants put out in beds late in May, is supposed by supporters of hardy flowers to have passed away for ever. A glance over some of the principal nurseries and market gardens in spring, or of the public parks in summer, would show how mistaken that supposition is. There are probably more Zonal Geraniums (*Pelargoniums*) grown in gardens at the present time than there were in the days when this flower was in the heyday of its popularity; but they have become commonplace, and are not much talked about.

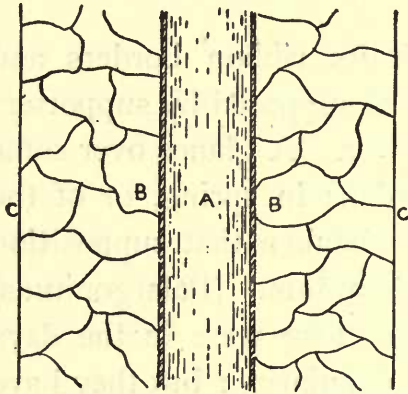
Hardy herbaceous plants are now discussed and exhibited as tender bedders once were. We see group after group of them at the great flower shows. Geraniums may be exhibited by one nurseryman, and hardy plants by twenty. Well-to-do amateurs, who used to specialise in Geraniums, now vent their enthusiasm on Phloxes, Paeonies, Delphiniums, and Pyrethrums. We as little expect to see fashion cultivating ribbon borders as wearing crinolines and high stocks.

Is the change to be deplored? Assuredly, no. The cheerful old Zonal nobly played a part, and indeed plays it still. It is a bright, free-blooming, general utility plant—a sort of maid-of-all-work among flowers. But the combinations which it forms with its sister bedders, the yellow *Calceolaria* and the blue *Lobelia*, lack the interest and variety of associations of the finest hardy plants.

The tendency in flower gardening nowadays is to have an expanse of well-kept turf where geometrical bedding designs formerly existed, and to surround the grass with broad borders, filled with chosen hardy flowers. If the borders are as spacious as the size of the



garden will permit, are well cultivated, and are furnished with good, carefully selected plants, even the warmest supporters of the old régime will admit that they are superior, both in beauty and interest, to formal beds. They are attractive for the greater part of the year, they give varied and ever-changing effects, and they yield large quantities of beautiful flowers for rooms.



HERBACEOUS BORDERS

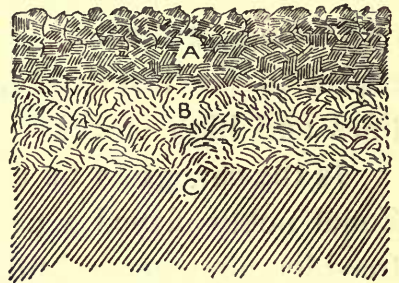
A, path; B, B, borders; C, C, boundary of borders.

The coloured plates that accompany the present notes show many beautiful examples of herbaceous borders; but before considering the plants which compose them individually, it may be well to offer a few general hints about the arrangement and cultivation of hardy flowers.

In the first place, it is wise to make borders as wide as possible.

Some of the finest of herbaceous plants, such as Paeonies and Delphiniums, attain to considerable dimensions when planted in fertile soil, and crowding is apt to take place in a narrow border. But that is not the only trouble. When the different kinds are bunched, none shows to advantage. Their individual beauties are lost. Six feet should be the minimum width of a border; twelve feet will be much better.

Secondly, the ground for a herbaceous border should be prepared as thoroughly as a kitchen gardener would prepare it for prize Onions; that is to say, it should be dug to double the depth of a large-sized spade, and have a liberal dressing of manure incorporated. It should be dug in autumn or winter if possible, so

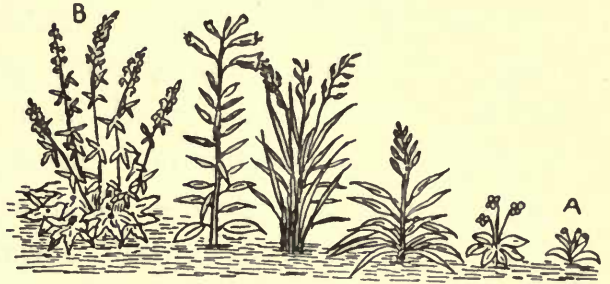


PREPARING GROUND FOR BORDERS

A, soil well broken up; B, soil generously manured; C, loosened sub-soil.

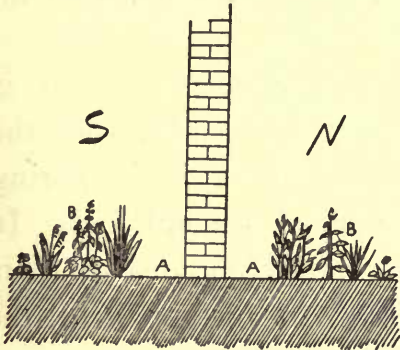
that it may have time to settle down before planting time comes in March and April.

Thirdly, and not least important, careful consideration should be devoted to the selection and arrangement of the plants. The interpretation which some people put upon the term "mixed border" is unconvincing. They "mix" with a vengeance. They cram in all kinds of plants, without any thought as to how they will harmonise with each other. And they put in three where there is only space for one.



END VIEW OF PLANTS IN BORDERS  
A, front of border; B, back of border.

Three cardinal points may be urged on makers of herbaceous borders. (1) To avoid putting in any plants without considering the proportions and colours of its neighbours; (2) to allow sufficient room for every plant to display its individual characteristics; and (3) to arrange the plants in groups which are beautiful in themselves, and likewise make a harmonious whole; so that the border may be viewed in sections, or as a complete entity, with equal pleasure. Are these requirements difficult to provide? No.



NORTH AND SOUTH BORDERS

N, north border; S, south border; A, A, path, or space between the plants and the wall; B, B, plants in the borders. Suitable for different kinds of herbaceous plants for prolonging the flowering period.

It is true that they involve a little study, forethought, and restraint. It is equally true that they make demands on the artistic powers of the flower gardener which ribbon borders do not. But when we grant these things we concede nothing that is alarming or disagreeable; indeed,



the contrary is the case, for acquiring a knowledge of good hardy plants, and learning how to arrange them, is a delightful study.

Our coloured plates do not show us wild tangles of plants, huddled together in dense, indistinguishable masses—dishevelled and incoherent. They show us beautiful groups of particular plants. And the lover of herbaceous borders will do well to take to heart the lesson that they teach, and which is here emphasised. It is far better to make up a border of a dozen different kinds of plants than to pack it with fifty genera. If the objection is raised that this



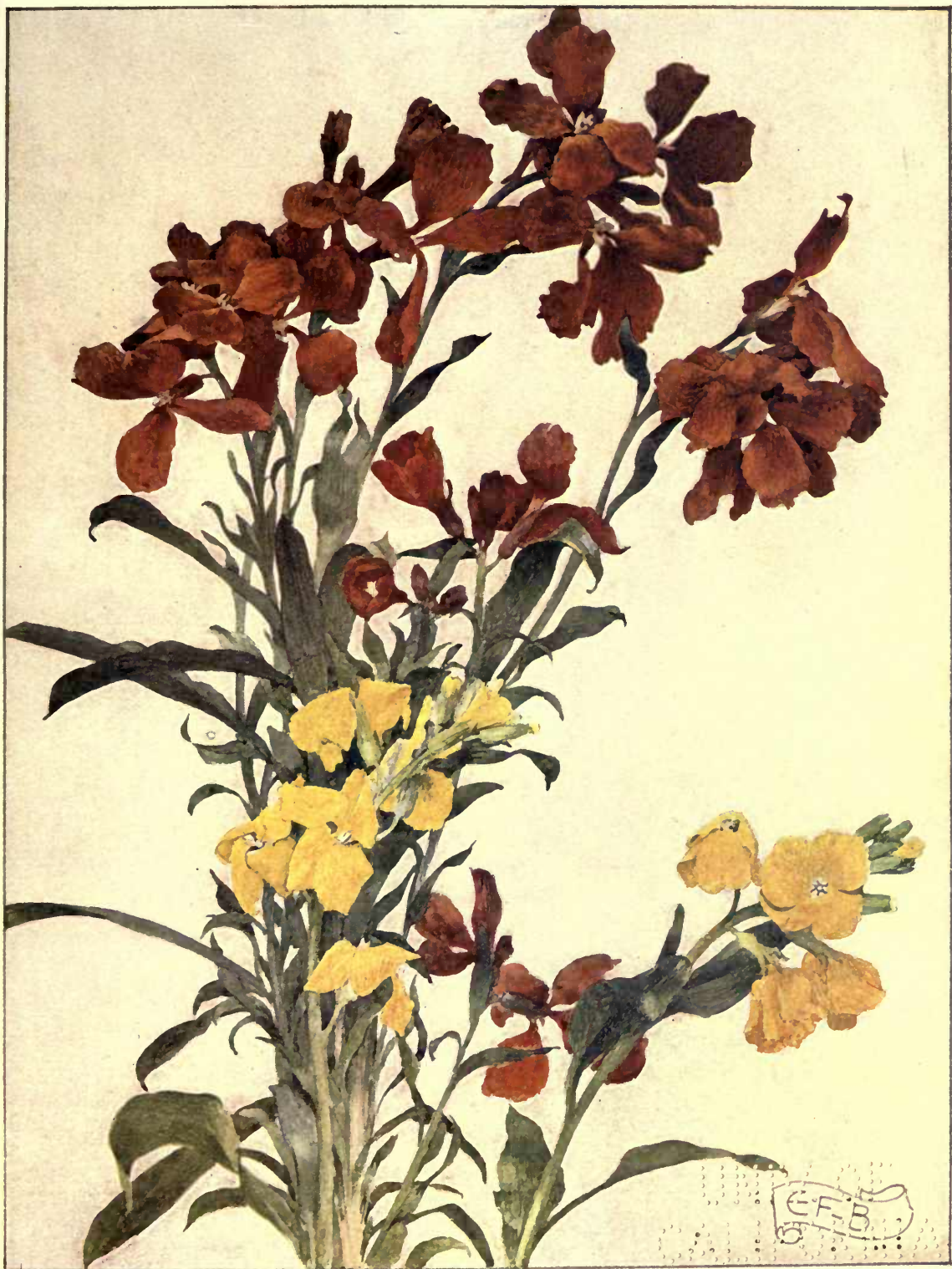
NEGLECTED CLUMPS

Large clumps, when left for a long time without lifting and dividing, become weak near the centre. A, A, outside of clump growths are strong. B, inside of clump growths are weak.

entails a want of diversity, the answer is that such is far from being the case, because of the number of varieties which exist of all the principal kinds. Let the flower gardener take up a catalogue of hardy plants, and he may find anything between twenty and fifty distinct varieties of Phloxes, Sweet Peas, Paeonies, and all the leading hardy flowers.

Forethought is very necessary. It is hard for the amateur to realise that the little plants which he puts in in spring will, at the end of three months, have extended several feet. In the remarks on special plants which are to follow an idea of their dimensions will be given as a guide, and to further help the beginner the colours of the varieties will be mentioned also.

The arrangement of the plants in a series of groups, in order to secure similar effects to those seen in the coloured plates, really simplifies, rather than confuses, the task of making beautiful borders. If a flower gardener with little experience saw before him a long stretch of bare earth, and attempted to formulate a collective scheme for filling it, he would find himself perplexed and bewildered. Many do find themselves in such a dilemma, and in sheer helplessness and ignorance put in ("stick in" would be a pardonable phrase in such



WALLFLOWERS  
By E. Fortescue Brickdale



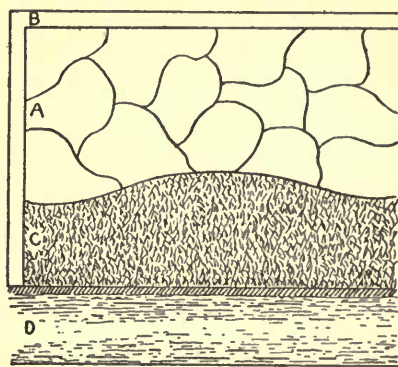
TO VIMU  
AIRBORNE

circumstances) everything that comes along, and in the order in which it presents itself. In such haphazard fashion are mixed borders often formed. But if the amateur marked out a given number of sites in the border, extending its whole length, and established a group on each, he would at once discover that he had a definite scheme to work on, which gave him the nucleus of a beautiful border forthwith.

The leading idea should not be to cover every square inch of surface at the earliest possible moment. That inevitably leads to ultimate overcrowding. Bare earth in spring and early summer is not in the least offensive, so long as it is not weedy. With clear spaces between the different groups the hoe can be plied freely and conveniently when the ground dries after every shower, to the swift destruction of weeds, and the immense benefit of the proper occupants of the border.

Later in the year confusion is often caused by the falling about of the growths of tall plants in windy weather. This should be corrected at once by staking and tying. In this connection the amateur may be advised to remember that tight "bunching-up" is undesirable, and that a tie near the bottom of a plant, and another near the top, will generally hold it more evenly and securely than one in the middle. Plants with flower stems which droop gracefully, such as Solomon's Seal, Foxgloves, and Gladioli, should not be held as straight and stiff as soldiers on parade.

It has been mentioned that spring is a good time for planting herbaceous borders, but it may be done in autumn or winter (except when the ground is hard with frost), if more convenient.



HERBACEOUS BORDER WITH TURF

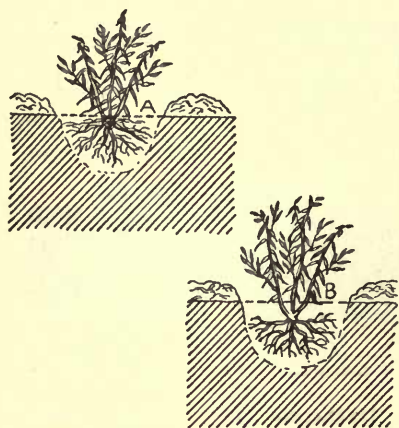
A, border ; B, wall, or fence, or background ;  
C, grass ; D, path.



Nearly all the different kinds may be propagated by division from October to April inclusive.

The amateur should not be afraid to impart a little individuality to his herbaceous borders. It is not often, probably, that he will see stumps, or pillars, or mounds of rock introduced into them, but that is no reason why he should not utilise them if he thinks fit. As a matter of fact, a few gnarled, lichen-covered, weather-worn tree boles, partially hidden in rambling Roses, Clematises, and Honeysuckles, form a quaint, interesting, and beautiful background

to Lilies, Delphiniums, Hollyhocks, and other fine border plants. Such pillars may be made the central figure of some of the border groups, and by breaking up stiff outlines, providing irregularity of height, and at the same time giving support to graceful and beautiful plants, they will add greatly to the charm of the border.



PLANTING

A, right depth to plant; B, too deep.

The flower gardener should not allow himself to be tied down by definitions.

“Herbaceous plants” has come to

signify perennial plants, but there is no reason whatever why beautiful annuals like Sweet Peas, China Asters, Ten-week Stocks, Phlox Drummondii, Salpiglossis, and Zinnias should not be included. In their case, as in that of the perennials, the plants should be set in distinct groups.

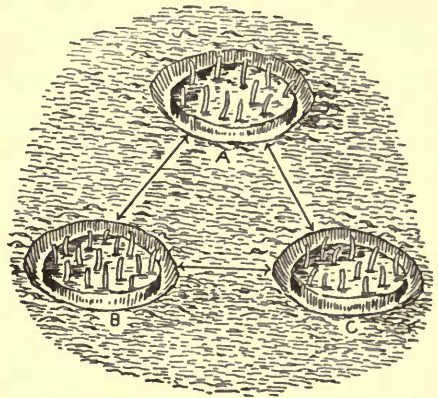
What, it may be asked, constitutes a “group”? Does it mean half-a-dozen plants, or does it mean fifty? Other things being equal, a large group will give a finer effect than a small one, but it must be remembered that the size as well as the number of the plants has to be considered. Here the effects of cultivation come in. In rich, moist soil plants will grow to double the size that they will in poor, dry ground. A group of six plants may be more

effective than one of twelve. Another item to be considered is the habit of the particular plants. Owing to its bushy, spreading nature, one healthy Paeony plant will fill up as much space as a dozen Phloxes, with their slight, upright growth. The number of plants to constitute a "group" may vary from three to twelve, according to the size of the border and the habit of the plants.

It is sometimes difficult to insure a fine and continuous effect in a small border without making two plantings, but the little trouble involved in this is so amply compensated by the results obtained that it should never be grudged. As an instance, it is not easy to get spring beauty in border groups without introducing bulbs, such as Tulips. Now these brilliant flowers become unsightly when the bloom is gone, because of the fading of the foliage. If they are left in the border they mar its beauty; if they are taken up and the ground left bare the gaps are noticeable. The proper course here is undoubtedly to form a reserve of good Asters and Stocks, which may be planted out when the Tulips fade. There is no need to wait until the latter have lost their foliage. They can be transplanted to a reserve bed directly the bloom is over, which, in the case of the late-flowering sections now so popular, may be the end of May or the early half of June.

The Ivy-leaved Geranium is another plant which comes in useful as a successional plant, and the first half of June is an excellent time to plant it out. A very pretty effect is produced if low stumps, over which the plants may ramble, are put in the border.

Even more valuable, because of the ease with which it can be raised in quantity from seed in winter or spring, and its long period



PLANTING IN THREES  
A, B, and C, clumps.



of blooming, is the Snapdragon. It can be planted out at almost any period of the summer, flourishes in nearly all soils, and is very brilliant in colour.

One last suggestion for maintaining the beauty of borders may be made, and that pertains to the autumn. It is to grow a selection of Chrysanthemums in a spare plot throughout the summer, and when some of the larger of the herbaceous (that is, stem-losing) plants fade, and become unsightly, to cut them down, and plant the Chrysanthemums near them. Herbaceous borders are often ugly and untidy after August, simply because the summer-flowering plants are past their best, and there is nothing to carry on the display. The provision of autumn-blooming plants, such as Michaelmas Daisies and Golden Rod, when the border is first formed, will do something to prevent this, but the introduction of the Chrysanthemums can still be effected with advantage.

The importance of forming the nucleus of a border by making a selection of the best plants, and arranging that they comprise kinds which flower at different seasons, is so great that we give a table containing the names of first-class plants, with their flowering seasons. Subsequently, the various kinds are dealt with individually.

*Spring.*

Anemones, Crown.	Doronicums.	Primroses and Polyanthuses.
Aquilegias (Columbines).	Forget-me-nots.	Pyrethrums.
Crown Imperials.	Irises.	Tulips.
Daffodils.	Paeonies.	Wallflowers.
	Phloxes.	

*Summer.*

Anemones, Crown.	Foxgloves.	Pansies.
Antirrhinums (Snapdragons).	Gaillardias.	Poppies.
Asters.	Gladioli.	Pentstemons.
Begonias.	Hollyhocks.	Phloxes.
Campanulas.	Irises.	Roses.
Cannas.	Kniphofias (Tritomas).	Stocks.
Canterbury Bells.	Lilies.	Sunflowers.
Delphiniums.	Lupins.	Sweet Williams.
Evening Primroses.	Ox-eye Daisies.	Violas.
	Paeonies.	

*Autumn and Winter.*

Anemones, Japanese.  
Asters.  
Christmas Roses.

Chrysanthemums.  
Dahlia.

Irises.  
Michaelmas Daisies.

*Anemones.*—Many of the Anemones are dwarf plants, more suitable for the rockery than the herbaceous border, but there are two notable exceptions, the Crown and the Japanese Anemones. The former bloom in spring and summer, and the latter in late summer and early autumn. There are two special strains of Crown Anemones, the St. Bridgid and the Alderborough. If readers have seen groups of Anemones at the large flower shows with double and semi-double flowers as large as Roses, brilliant rose, pink, scarlet, blue, and mauve in colour, they have probably seen Alderborough Anemones. One can buy roots of these, or seeds. It would secure a succession of bloom if some of the roots were planted in autumn and others in spring. They might be buried about an inch deep. They grow about a foot high, and make the most beautiful beds and border clumps imaginable. The Japanese Anemone is a totally different plant, alike in habit, bloom, and foliage. It grows about three feet high, and the best varieties have single white, pink, or rose flowers about two inches across. It is very graceful and beautiful, and as it thrives in most kinds of soil, and spreads freely, it ought to be specially marked. It can be increased by division in spring. The Japanese Anemone is shown in one of the coloured plates.

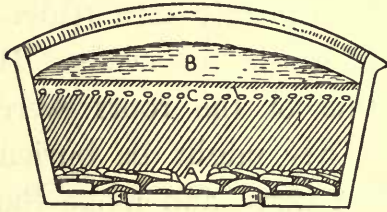
*Antirrhinum* (*Snapdragons*).—There are no finer or more valuable bedding or border plants than the Snapdragons. The flower gardener who finds himself disposed to look somewhat disdainfully on this old flower should make himself acquainted with the modern strains of the Scottish florists, which have large flowers of the most lovely colours. How can he effect this purpose? The cheapest way is to buy a packet of seed from one of the leading firms, and grow them for himself. He will find them very easy to manage. If



he sows his seed in a frame in March he will probably have the plants in bloom in July, and when once fairly started they will keep growing and flowering for several weeks—in fact, the period may easily run to months, for the Snapdragon is about the most continuous grower and bloomer of all hardy plants. He can propagate the best of the seedlings by cuttings.

*Aquilegias (Columbines)*.—These are quaint as well as beautiful flowers, with their long spurs. They are deservedly popular, for they are graceful in habit, bloom freely, and have attractive colours. They are raised quite easily from seed, and it is a good plan to sow about the end of May for flowering the following year. Of the several beautiful kinds *californica hybrida*, *caerulea hybrida*, *glandulosa*, and *chrysantha* are worthy of special mention. All of them can be got separately.

*Asters, China, and Perennial (Michaelmas Daisy)*.—The China Aster is not recognised by botanists as an Aster at all; their Aster is the Michaelmas Daisy. If the China Aster had its full



SOWING SEEDS IN PANS

A, drainage; B, soil covering seeds;  
C, seeds.

botanical deserts it would be burdened with the formidable name of *Callistephus*; let us hope that it will never get them. We have already seen how useful it is for transplantation to the border when some early flowering plant, such as the Tulip, has passed its best. The flower gardener can buy several quite distinct types, such as the Ostrich Plume, the Comet, and the Victoria. He will find all of these valuable, with the first named for choice. He can buy the seed in mixed or separate colours, just as he likes. An assortment of six separate colours will cost rather more than a mixed packet, but it will give the grower the advantage of being able to arrange the colours to his taste. In arranging plants from mixed seed he is working in the dark. He may sow in March or April, preferably, but not necessarily, in a frame or greenhouse. He will

be wise to sow thinly, to cover lightly, to prick the plants off (if raised under glass) about three inches apart into boxes before they become crowded in the seed pans, to avoid letting the soil get quite dry, and to give abundance of air in fine weather. The only remaining source of anxiety is the black fly, which attacks the plants in late spring, and will spoil them if it is not attacked in turn. Tobacco powder, or very hot water with an ounce of soda to the gallon, will kill it if used promptly. If the plants begin to get crowded in the boxes before the ground is ready for them they may be planted out nine inches apart in a reserve bed, from which they can be shifted at any time. The perennial Asters are magnificent for autumn blooming, and are the easiest of plants to grow, thriving in most soils, and being readily propagated by dividing the clumps, preferably when growth is starting in spring. There are many varieties, of which *Bessarabicus*, *Framfieldii*, and *Riverslea* (forms of the species *Amellus*), *Mrs. Rayner* and *Wm. Bowman* (forms of the species *Novi-Angliae*) and *ericoides* are a few of the best. *Alpinus* and *Novi-Belgii* are also good.

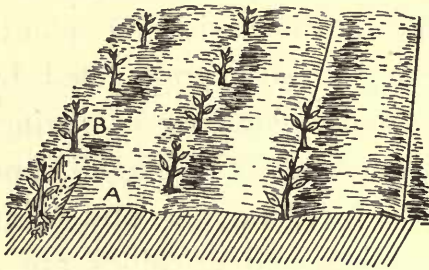
*Begonias*.—The most popular class of *Begonia* at the present day is the tuberous rooted, of which the flowers fade and the stems wither in autumn, but the tubers pass the winter in a dry store, in a dormant state, and start growing again in spring. It is not hardy, and is used extensively for greenhouse and conservatory decoration, but that is no reason why so brilliant and beautiful a flower should not be used for the summer decoration of the flower garden. The tubers may be started in a box containing leaf mould or cocoa-nut fibre refuse, and the young plants put out early in June. The modern strains are very fine, alike in the size of the flowers, the habit of the plants, and the brilliancy and diversity of the colours. The plants make gay beds and clumps in borders. *Begonias* are more fully referred to in the section devoted to bulbs and greenhouse plants.

*Campanulas*.—The fact that the Canterbury Bell is a *Campanula*



can hardly fail to prepossess amateurs in favour of this genus. When they have studied it a little they will find that it contains plants very little less valuable than the old favourite named. Some, such as *pulla*, *turbinata*, and *carpathica*, are quite dwarf; others, like the splendid double white peach-leaved *Campanula* (*persicifolia alba flore pleno*) and *glomerata dahurica*, are of medium height; while still others, such as the fine *pyramidalis* (which, however, is generally grown in pots) are nearly as tall as Hollyhocks. The *Campanulas* are mostly either blue or white. Some are annuals, others biennials, and yet others perennials. The first are best raised

from seed sown in spring, the second and third from seed sown in early June, or by division of the root-stocks.



PLANTING SEEDLINGS IN NURSERY BEDS

A, distance between the rows; B, distance between the plants in the rows.

*Cannas*.—Like tuberous *Begonias* and *Zonal Geraniums*, *Cannas* (*Indian Shot*) are grown extensively for both greenhouse and flower garden. They are extraordinarily brilliant flowers, some of the colours

being vivid in the extreme. The flowers are borne on long stems, which stand well up above the large green or brownish purple leaves, so that they are very effective in beds or clumps. They are easily raised from seed, but this is difficult to get of the best varieties, such as *Madame Crozy*, *Italia*, and *Austria*, and if it were the colours might not come true. The plants form tubers, which are lifted in autumn, stored under greenhouse stages, and divided in the spring. Divisions form plants which keep true to colour. *Cannas* love a deep, rich, moist soil.

*Canterbury Bells*.—The rise of some modern flowers has not caused old favourites like the *Canterbury Bell* to decline, nor is it likely to do so, considering how powerful its claims are. Its compact habit, great profusion of bloom, brilliant colours, duration,



ORANGE LILY  
By Margaret Waterfield



TO THE  
AIRBORNE

and cheapness (for several hundreds of plants can be raised from one packet of seed sown at the end of May) combine to render it indispensable. There are blue, rose, and white varieties, and there is a duplex-flowered form (calycanthema) which is commonly called the cup-and-saucer Campanula. No flower gardener of limited means can afford to ignore the Canterbury Bell. It is one of those things of which he should make a special note. It will give him striking beds and beautiful border clumps at a cost of a few pence. As fast as the flowers fade he will pick them off, and fresh buds will form in abundance. If people are disposed to be hypercritical, and to complain that the Canterbury Bell is a common cottage garden flower, let them remember that they can always give it individuality by special care in cultivation—thin sowing, planting out a foot apart in nursery beds for the summer, and rich, deep soil in its permanent position.

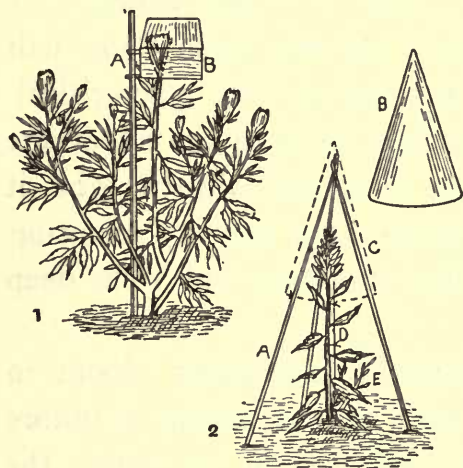
*Christmas and Lenten Roses (Hellebores).*—Outdoor bloom in the dead of winter is not so common that we can afford to ignore any plant which gives it. Still less can we do so when the blossom is so pure and beautiful as that of the Christmas Rose, *Helleborus niger*. We can have this lovely flower in all its virginal purity on our Christmas table, yet gathered from the open ground. It is, of course, a hardy plant, but gardeners often cover it with a small hand-light, to preserve the flowers from frost, and also to prevent them from being soiled by earth thrown up in rainy weather. In the Royal Gardens at Kew the clumps of Christmas Roses shown in one of the plates are not covered, but are planted among hardy ferns, which no doubt serve as a protection both against frost and flying grit. The plant will thrive in most soils, but prefers well-drained to stagnant ground. There is a large variety of the Christmas Rose called *maximus*, and another pretty one named *angustifolius*. The Lenten Rose is also a Hellebore, but a different species—*orientalis*. The flowers resemble those of a Christmas Rose in form, but give a range of



colours which the latter does not. The Hellebores may be propagated by division.

*Chrysanthemums*.—The Chrysanthemum is the most valuable of all indoor plants under glass in autumn, and very nearly the best of outdoor plants also, although the Dahlia is undeniably more popular, and the Michaelmas Daisy also presses it hard. It must be remembered that we not only have the varieties of

the florist's Chrysanthemum to take into consideration in estimating the merits of the plant, but also the Ox-eye Daisy, *Chrysanthemum maximum*, and the tall, white-flowered plant generally grown under the name of *Pyrethrum uliginosum*, which is really a Chrysanthemum too. The Ox-eye Daisy is not a plant displaying variety of colour, but it is useful all the same, for it forms large clumps, and bears immense numbers of its great white flowers. There is a variety of it called King Edward VII. that is finer



PROTECTING FLOWERS

1. Marigolds—A, stake ; B, box with glass on top, fastened to stake to protect flower. 2. Phlox (or similar plant with spike)—A, stakes fastened together at top ; B, cap to fit as shown by dotted lines C ; D, plant and spike ; E, young side-shoots to be removed.

than the type. Both this plant and the species *uliginosum* will grow in most soils, and are easily increased by division of the root-stock. The florist's Chrysanthemum is a superb garden plant for late summer and early autumn. Its beautiful flowers, in a great variety of colours, borne well above the leaves, light up the dull days of October and November in the most delightful manner. And they are not only beautiful on the plants, they are also valuable for cutting. One of the great merits of the plant is that it can be grown throughout the summer in a reserve plot, and transplanted to the border when in full bud, so long as a

good soaking of water is given before the shifting, and a cool, damp day is chosen. If the grower wants the best results he must not read "reserve plot" as meaning any poor, out-of-the-way, shady corner; on the contrary, he should provide rich soil, and give water and liquid manure in dry weather. Many people treat Chrysanthemums like the majority of border plants, that is, grow them on the same ground year after year, and only propagate them by division every two or three years. This is not wise, for the plants either die out altogether or become very weak. It is best to strike fresh cuttings every spring, as then vigorous young plants are got that are sure to bloom well. Among many beautiful varieties Rabbie Burns, pink; Nina Blick, bronzy red; White Quintus and Madame Desgranges, white; Horace Martin, yellow; Goacher's Crimson, red; and Framfield Pink, pink, may be named as particularly desirable. The Chrysanthemum as a pot plant will be dealt with fully in the section devoted to indoor plants.

*Crown Imperial (Fritillaria)*.—See Bulb section.

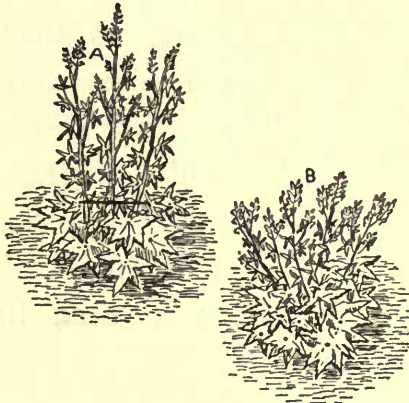
*Daffodils*.—See Bulb section.

*Dahlia*.—See special chapter.

*Delphiniums or Perennial Larkspurs*.—Average height, five feet; flowering season, summer. Has the reader seen a plant with stems four or five feet high, the lower part furnished with broad, much-cut leaves, and the upper portion with bright blue flowers? If so, he has gone a little way towards making the acquaintance of the Delphinium or perennial Larkspur. It is a stately border beauty, and when one sees its tall spires of blue rising against a lichen-stained wall or grey brown larch pillar, with white Lilies at its foot, one's admiration goes out to it whole-heartedly. It is one of the plants which the flower gardener with an eye to beautiful border effects fastens on unerringly. Its possibilities suggest themselves at once. Fortunately it is not a difficult plant to grow. It thrives in any fertile, well-drained soil, and does not object to



clay, provided that the latter is well broken up, and free from stagnant water. The finest results are secured when it is planted in deep, well-manured loam, such as will give good Roses. The flower stems may then rise six feet high, half of which is clothed in large single or semi-double flowers. The finer the plants the greater the necessity for adequate staking. Without support the stem may be blown over in stormy weather. Staking must not, however, be done carelessly, or the spikes will not show to advantage. Care should be exercised to insert the stakes and affix ligatures in such a way that they are not obtrusive, and yet do their work. The stems must not be arched or bunched. The range of colour in Delphiniums is not great, but that is of no consequence, because they give us that rarest of colours, blue, in all shades, from palest lavender to deepest indigo. Some of them have white centres. Other varieties are wholly white. The plants may be easily propagated by



#### CUTTING DOWN DELPHINIUMS

A, old stems and faded flowers cut off at dark line; B, result, second crop of flower spikes.

dividing the roots in spring. There are many varieties, the best of which are sold under names, in the same way as Roses, Chrysanthemums, and other popular flowers. The following are beautiful varieties:—

Beauty of Langport.  
Belladonna.

Blue Céleste.  
Persimmon.

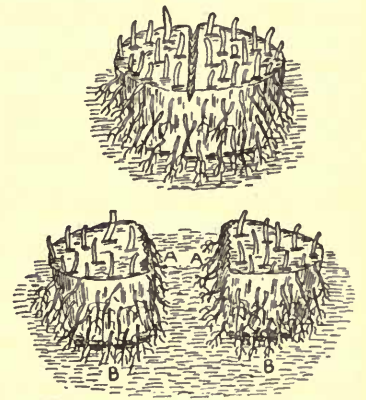
Princess of Wales.  
Spinosa.

*Doronicums* (*Leopard's Banes*).—It would be over-straining language to describe the Leopard's Banes as an important genus in the same sense as Phloxes or Chrysanthemums. They are not that, but they are extremely useful all the same. They make very early growth, and the mere sight of their cheerful clusters of green leaves at the break of spring is inspiring and encouraging. Thick,

strong flower stems are thrown up, rising, in the case of the fine variety Harpur Crewe, nearly two feet high. The colour is bright yellow. We have few more "handy" plants than these *Doronicums*, for they will grow almost anywhere, they are hardly planted before they begin to flower, and they remain in bloom a long time. They are propagated by division.

*Evening Primroses (Oenotheras)*.—The Evening Primrose is characterised by great profusion of bloom, and it is a bright border plant. The principal drawback is a tendency to straggle, but this is not so marked in one or two of the modern varieties. The species *biennis* and its variety *grandiflora* (which is often grown under the name of *Lamarckiana*) are both large flowered yellow plants, but seedsmen sell a variety under the name of *taraxacifolia alba* which is white. The most compact Evening Primroses are the species *fruticosa* and its variety *Youngii*, both yellow flowered. The latter is perhaps the most useful that we can have, as in addition to its closeness of growth it has the merit of producing a great mass of brilliant flowers. Evening Primroses thrive in most well-cultivated garden soil, and they do extremely well on cool, clayey land. They may be propagated by division, but can be increased in quantity more rapidly from seeds, which should be sown out of doors in late spring, the same as Wallflowers.

*Forget-me-nots (Myosotis)*.—The little blue Forget-me-not is a cheap but precious flower, which we should be very ill-advised to banish from our gardens because it is "common." If it comes to that, Roses are "common," Sweet Peas are "common," all popular flowers are "common." We must grow the Forget-me-not for its own sake—for the thick cushions of sparkling blue



LIFTING AND DIVIDING CLUMPS

Roots A, A are not broken when a fork is used ; B, B, outside fibrous roots preserved.



of charm in the flowers, but because of a certain lack of freedom in growth, which prevents it from giving those large decorative effects which modern flower gardeners seek. It does not form huge masses, surmounted by great lustrous flowers, like the Paeony. It does not uprear lofty spires like the Delphinium. It does not spray itself in clouds of brilliant blossom over arches like the Rose, or form dazzling columns like the Sweet Pea. It is a neat, somewhat close grower, with sword-shaped leaves and arching flower stems closely studded with funnel-shaped flowers. But it is by no means an inconspicuous plant. The flower spikes are thrown well above the foliage, and in the most vigorous varieties they rise to a height of thirty inches or more. In suitable soil half-a-dozen corms set a few inches apart will form a fine clump.

The Gladiolus is what is called a florist's flower—that is, it has been specialised under distinctive varietal names, provided with a standard of excellence, and exhibited in special classes at shows. The old florists made quite a pet of it, and, naturally, they wrangled over it. They disputed over the proper pronunciation of the name. One was for Gladiolus; a second declared that this was wrong and that it should be called Gladiōlus; a third heaped scorn on both parties and insisted that Glādiolus was correct. "Custom," said a philosopher, "is the legislator of languages," and custom decrees that our flower shall be called the Gladiōlus.

The strait-laced florist is often, and justly, held up to ridicule for his narrow-mindedness, but we must give him credit for one thing at least—he does improve flowers. He has worked wonders with the Gladiolus. He is now more absorbed in the Rose, the Carnation, the Dahlia, and the Sweet Pea. But it matters nothing at all that Gladioli are not grown for exhibition so long as they increase in favour for flower garden decoration, and that they are certainly doing. The florist has served his purpose in showing us

what to strive for, the hybridist has given us an increased number of beautiful varieties, and—not least in importance—prices have come down, thus bringing the flower within the means of many who could not afford to grow it in former days, and permitting those who could only have a few to plant more largely. It is still too dear to become everybody's flower, and it is difficult to see how it can ever become as cheap as the Sweet Pea or the Daffodil, because raising plants from seed is a slow process, and although the plants are easily increased by offsets, they do not multiply rapidly. A few of the old species are cheap enough, notably the scarlet one called *brenchleyensis*, which only costs about sixpence a dozen. But the modern cross-bred sorts cannot be bought at anything like that price, the corms costing from sixpence to half-a-crown each.

A person who is particularly partial to Gladioli may form a special bed of them, and if it should only contain a dozen plants it will afford him great interest and pleasure, provided that the plants are well grown and the varieties are good. The character of the soil is an important point. It must not be stiff, cold, and damp with the unwholesome dampness of stagnancy. It must be very friable and warm, yet moist—warmly moist. How can we make the soil right? If it is naturally friable, we need only dig it deeply, and work a dressing of manure nine or ten inches below the surface. If it is stiff clay we must break it up eighteen inches deep, and dig in a liberal dressing of road grit, wood ashes, and mortar rubbish. We may also work in superphosphate of lime or bone dust at the rate of four ounces per square yard. This treatment will quite alter the character of the soil, making it warmer and more fertile. Gladioli lovers need never be afraid of growing the plants on clay, provided that they are prepared to take the little trouble involved in adopting the suggestion here thrown out, for the plants will thrive admirably on it.

Spring is a good time to buy the corms, and they can be purchased from almost any florist, seedsman, or bulb merchant. *Brenchleyensis*,



Colvillei, and some other species can be bought with Hyacinths and Tulips in autumn, and planted then. The first named is a really valuable flower garden plant, on account of its vigorous growth, hardiness, cheapness, and brilliant colour. Colvillei and the white variety are generally grown in pots, particularly the latter, which is a highly popular greenhouse plant. The corms of the fine cross-bred Gladioli are not generally harvested early enough in autumn to be sold with the Dutch bulbs, and in any case it would not be wise to subject such relatively expensive things to the rigours attending a winter sojourn in the open ground, because they keep perfectly sound and dormant in a dry, frost-proof store. Tulips and other bulbs will not remain dormant throughout the winter: they will begin to grow in autumn, and hence the necessity for early planting. The Gladioli corms may be covered with two inches of soil. When growth decays in the autumn it may be cut away, and the corms lifted; it will probably be found that a new corm has formed on the top of the old one, which is decaying. If this is the case, the old corm may be thrown away and the new one stored until spring. Should any small offsets have formed, they may be collected, stored, and planted in a nursery plot in the spring, to there increase in size, and eventually become of flowering size.

The beginner is often perplexed when, in turning to price lists, he finds various sections of a particular flower, the differences between which he does not know. In the case of Gladioli, for example, he may find them offered under the names of Gandavensis, Childsii, Saundersii, purpureo-auratus, and so on. It is really hardly worth his while to charge his mind with the distinctions, for even specialists are hard put to it to define them nowadays, so much have the sections been intercrossed. The person who buys a selection of good Gandavensis varieties will certainly be on the safe side, for they have the special merits that he wants—vigorous growth, and rich, varied colours. He will admire them on the plants, and he will admire them when, having given a tardy, reluctant consent to a young spike being

cut and placed in water, he sees the buds unfolding in succession day by day from the base to the tip. Its lasting beauty in a vase of water is one of the greatest of the charms of the *Gladiolus*. It is not uncommon for one to be a really beautiful object for three weeks.

The following are good varieties of *Gladioli*:—

*Agrius*, salmon pink, yellow eye.  
*Commandant Marchand*, ruby red.  
*Duchess of York*, white and lilac.  
*Enchantresse*, lilac rose.  
*Formosa*, rose.  
*Grand Rouge*, crimson.

*Hadrian*, pink, white centre.  
*L'Incendie*, cherry red.  
*Marie Thérèse*, creamy white.  
*Mary Anderson*, mauve.  
*Pascal*, rose, white centre.  
*William Kelway*, crimson, white spots.

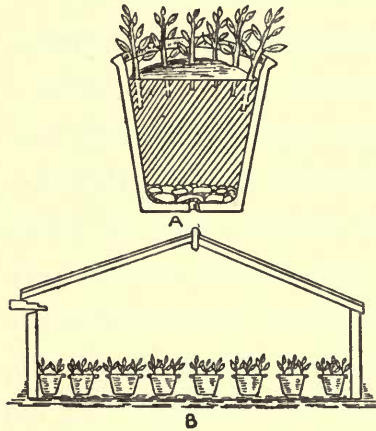
*Hollyhocks*.—The Hollyhock, *Althaea rosea* of botanists, must be classed with the great flowers of the past. About half-way through the nineteenth century it rose on a wave of popularity. It was one of the elect, one of the handful of special things that we dignify as “florist’s flowers”—that phrase which has so little meaning to the outsider, and is so full of significance to the professional horticulturist. The Hollyhock was grown in nearly every garden; it was a recognised exhibition flower. Then, suddenly, came a terrible *débâcle*. It was brought about by a fungus, called *Puccinia malvacearum*, which first attacked wild Mallows, and then spread to the stately garden Mallow—the Hollyhock. There were no half measures in the operations of the fungus. It came, it saw, it conquered. It did its maleficent work with startling rapidity. It spread all over the country like a swift and deadly pestilence. A few weeks, and the Hollyhock was practically “wiped out.” Its lovers were in despair. A few cheerful spirits prophesied a swift resurrection. In the somewhat grandiose words of one writer of former days: “The eclipse is but a paltry shadow that for a season blots the sun from the heavens. We may reasonably hope to see the Hollyhock once more in its proper splendour, the noblest occupant of the country garden.” Alas for the prophet! After more than a quarter of a century the shadow still remains. Even if the fungus had lost its violence, or some



simple and inexpensive remedy had been found for it, the old Hollyhock would probably never have regained its place. A fallen flower rarely rises again—note the Auricula, the laced Pink, the Verbena. A limited number of people remain faithful to it, but their numbers gradually dwindle. Other flowers rise to take its place.

If, however, the Hollyhock is not the great favourite that it was once upon a time, before the Puccinia came down upon it, it is still grown with moderate success in many gardens. People do not pay high prices for special varieties as they used to do; they dare not

take the risk of it. But they still like Hollyhocks well enough to try their luck with them from seed, the cost of which is small, and entails no serious loss if the plants die away. There is a general opinion, indeed (an opinion not altogether groundless) that seedling plants are less severely attacked than special varieties struck from cuttings. Hollyhocks can be raised from seed just as easily as Canterbury Bells, and may be treated in the same way, being sown out of doors in late spring, transplanted, and



PROPAGATION BY CUTTINGS

A, cuttings in a pot; B, pots of cuttings in a frame.

flowered the following year. It is possible to bloom them the first year, but this necessitates sowing the seed under glass in February and pushing them on in pots. There was, perhaps, too much "pushing on" of Hollyhocks in years gone by. When new varieties were valuable they were propagated rapidly in heat by means of grafting, and it is possible that the constitution of the plant was thereby impaired. Be that as it may, we cannot err by giving Hollyhocks natural treatment now.

The finest plants are secured by planting in deep, heavily-manured soil, but the prudent grower may well sacrifice some degree of luxuriance in order to get harder, healthier growth; and to

this end he may decide to manure moderately. He will, however, deepen his soil thoroughly, otherwise he may find himself at the other extreme, and have such poor, weak, puny plants that handsome flower spikes are impossible. The Hollyhock does not care for a hot, dry, shallow soil. It loves a deep, cool, moist medium. Give it a sunny position, however, by all means. Heavy shade from overgrowing trees is bad. If its requirements are met it will probably push up flower stems six to eight feet high, packed with single, semi-double, or double flowers, in a great variety of colours.

The appearance of the fungus is shown in the presence of small reddish, raised spots on the leaves, which are followed by the shrivelling and falling of the foliage, and the death of the plant. The spread may be checked by promptly picking off the affected leaves, and immediately spraying the plants with "Bordeaux mixture," which may be prepared as follows:—

#### RECIPE FOR BORDEAUX MIXTURE.

(1) Dissolve one pound of bluestone (sulphate of copper) in a little water in a wooden or earthenware vessel.

(2) Slack one pound of freshly burnt quicklime in another vessel.

(3) Stir the lime-cream and pour it, together with the bluestone solution, into a vessel containing ten gallons of water.

(4) Stir the whole mixture, and hold a steel knife blade in it for a few moments. If the steel should discolour, add more lime-cream. If it remain bright, the mixture is safe.

The mixture should be quite free from lumps. It is best applied through a spraying syringe, that spreads it in a fine, dew-like state, in which condition it adheres. When applied through the rose of an ordinary syringe the liquid falls in a comparatively heavy shower, and runs off quickly. The application may be repeated if necessary.

*Iris*es.—One of the most richly painted of our garden flowers, the Iris also presents us with great diversity of height, habit, and cultural requirements. It is an indication of the change in popular taste in respect of flowers that while nowadays the Iris has special books devoted to it, the index of the original edition of a famous standard work does not include it, although we find under "I" *Itea virginica* and other insignificant things. The charm of the Iris is irresistible. It appeals by grace and quaintness of form, hand-



some foliage (evergreen in some classes), beautiful colour markings, perfume—by everything that makes a plant valued by lovers of flowers. Attention is arrested in the first place by the beautiful blooms of the bolder forms; it is retained, and developed into a lasting affection, by the dainty loveliness of the smaller kinds.

We cannot think of hardy flower gardening without thinking of Irises. They stand forth as among the most valuable of border flowers. We can specialise them if we like, and they are at least as well worthy of it as Dahlias and Carnations. If we do we shall find them as full of interest as they are of beauty. Some of the exquisite gems of the bulbous and cushion sections will require a little "mothering" at times, others are as hardy as Savoys. The "Flag" class will grow almost anywhere. If not so fine in bloom on a dry, hot, town bank, amid impure air, as in the deep, cool clay of a country garden, they at least appear quite as happy. The Japanese section, which is known as *Kaempferi* and *laevigata* (the latter is the name now used by botanists, although tradesmen still cling to the former), has opposite tastes. It never does itself real justice except in moist, cool places. It loves the humid surroundings of a pond side. When quite at home by water it makes huge clumps, and throws up stems a yard high, surmounted by flowers as large as breakfast plates, gloriously painted with rich and beautiful colours. We shall find exquisite beauty among the bulbous Irises, most of which are lowly growers; indeed, if we had no other class but this the genus would still be valuable. Several are winter bloomers, and that in itself is a powerful recommendation. To have flowers so lovely as those with the Aconites and Snowdrops is something for which to be grateful. Yes, an Iris collection, including the best representatives of the most valuable classes, would be indeed a feast of interest and pleasure.

We may, however, get immense gratification from Irises without specialising, merely cultivating them as border flowers. The Flag

section, or German Irises, will be found particularly valuable for this purpose, on account of their vigorous growth and large, brilliant flowers. They are what are termed rhizomatous plants—that is, the rootstock consists of a mass of hard, elongated, tuber-like swellings called rhizomes, which are really creeping stems, thickened and hardened, and with the power of emitting buds and roots. The sword-shaped leaves spring directly from the rhizomes. When the plants have been established in the same place for several years the rhizomes increase until they form a thick mass, part of which protrudes through the soil. Naturally the earth has become very much impoverished, but the clumps will grow cheerfully, and throw up flowers every year, without the least attention. Perhaps this is a drawback in one sense, because it leads people to suppose that the plant requires no cultivation. If it does not actually need it, it is greatly benefited by it, as any one will find who divides his clumps occasionally, and replants in deep, rich soil. The Flag Irises may be divided or planted at any time in the autumn, winter, or spring. Among many beautiful varieties the noble lavender-coloured one called *pallida dalmatica* stands supreme. Its huge flowers are a mass of glistening, shimmering beauty. *Gracchus*, *L'Innocence*, and *Madame Chereau* are three other beautiful varieties belonging to this section.

The cheapest, and not the least beautiful, of the Irises are the two sections called respectively English and Spanish. The latter is just about as cheap as a common *Crocus*, and far more beautiful and valuable. When we can buy a plant like the Spanish Iris for about twopence a dozen, it is not a case for hesitation, but for prompt decision to plant, and to plant largely. We can grow it in pots, too, if we like, the same as *Hyacinths* and *Tulips*. Spanish Irises are quite as easily grown as those popular flowers, and impart considerable diversity to a greenhouse or conservatory. Both the English and Spanish Irises are bulbs, and may be bought from the bulb merchant in October, like *Daffodils*. They



thrive in almost any fertile soil if planted about two inches deep. It is the most economical to buy them in mixture, and, except when a complete collection of Irises is being formed, it hardly seems worth while to grow them under names; but they can be purchased distinct if desired.

Then there are the Cushion Irises. These are a distinct and remarkable class. The species called *Gatesii* is one of the most perfectly beautiful things in the whole world of flowers. The ground colouring is cream, but it is spangled over with silver, and covered with a silvery venation. A yellow fringe or "beard" completes one of Nature's most exquisite and dainty colour schemes. It would be well if we could say of it, as of other Irises, that it is very cheap, but it is still too scarce to be low-priced. An equally remarkable "cushion" is the Mourning Iris, *Susiana*. This has a colouring all its own. Closely surveyed, the ground is seen to be of a greyish shade, but it is so heavily netted with dark chestnut brown that the general effect is sombre. It is a singular, almost weird, and altogether extraordinary-looking flower, yet it is in no way forbidding; on the contrary, it possesses a real charm, that does not quickly fade. After flowering, it is benefited by being protected with glass, which will focus the sun on it, and give it a thorough roasting, while throwing off heavy rain in wet weather. Experts recommend planting late in autumn, in order to discourage immediate growth, which might be injured by hard frost. Should mild weather cause growths to start after planting, some material should be kept at hand for throwing over them in frosty weather.

The Japanese Irises have flat flowers, and consequently differ considerably from Flags, which have upright segments ("standards") and drooping ones ("falls"). If somewhat less attractive in shape, they are equally rich in colour; in fact, the Japanese are among the most boldly painted of all Irises. It is not much use attempting to grow them in dry soil; they must have abundance of moisture if



MALLOWS  
By Margaret Waterfield



1907  
MAY 10

they are to do well. Named varieties are procurable at a price, but this is really a class in which mixtures are likely to answer every purpose, and they are cheaper.

The small bulbous Irises are nearly all winter and spring bloomers. They are mostly hardy, but in view of the fact that the flowers are sometimes injured by frost, it is common to grow them in pots in unheated frames. The lovely violet and yellow, scented species *reticulata* is a delightful little winter gem, and happily it is quite cheap. *Bakeriana*, blue and white, agreeably perfumed, is charming in the extreme, but is more expensive. *Alata*, *Histrion*, and *Rosenbachiana* are three other early, dwarf, bulbous Irises which the Iris lover will probably add to his collection.

*Kniphofias* (*Tritomas*, *Torch Lilies*, *Red-hot Pokers*).—Neither the botanist nor the garden-lover was apparently able to satisfy himself at the first attempt in naming this splendid plant of late summer, and consequently it is burdened with a formidable list of cognomens. But it is not easily overwhelmed. Alike in habit of growth and colour it is strong, resolute, and bold. Like some human beings, it may be disliked, but it cannot be ignored. It has personality and individuality. It not only compels you to stop and look at it, but to declare your sentiments towards it outright, and at once. The *Kniphofia* stands no nonsense. You have got to take it as it is, or leave it alone. Happily, there is not much difficulty in deciding which side of the fence to come down upon. Your vote is an "aye," and you march out of the division lobby with a proud sense of duty nobly done when you have ranged yourself among the band of "stalwarts" who support the gay *Kniphofia*. From the time when it first begins to grow in spring until it reaches the flush of bloom in September the plant is always handsome and distinctive. Its long, narrow foliage grows in a compact clump almost like an *Aloe*, hence the name *aloides* applied to one of the principal species—which, by the way, also enjoys two names, being sometimes called *uvaria*. The flower heads are upborne on long,



stout stems. They are well termed Torch Lilies, for they are often a foot long, and of a brilliant orange, salmon, or fiery red colour. A strong plant will throw up several, and when the plant is colonised, there may be scores (even hundreds, if it is planted in quantity) of the glowing flambeaux lighting up the garden. Such a picture as they then form is one not easily forgotten. For the matter of that, a single vigorous plant growing in a small bed in solitary state lingers in the memory. It may have as a neighbour a clump of Pampas Grass, the silvery plumes of which will attain to maturity about the same time as the glowing heads of the Torch Lily.

George Borrow described Spain picturesquely as the "Gonfaloniera of Rome." The Kniphofia might be called the Gonfaloniera of the flower garden. It must have a place in the herbaceous border, as well as on the lawn, and there it will form glowing rallying points. It must not be crowded up against a mass of Sunflowers, or half hidden in a tangle of Chrysanthemums, where its foliage will be obscured, and its vivid colours more than half killed. It must stand clear out, alert, striking, distinctive. It may be associated with other plants, such as Lilies and Delphiniums, dusky Michaelmas Daisies and stately Hollyhocks, but there must be no overgrowing, no muddle. It must be a case of careful grouping.

The Torch Lily is an easy plant to grow, provided that the soil is not dry. It loves moisture. Given a variety of soils (with which, however, few flower gardeners are favoured) a strong loam or clay such as would be likely to suit Roses should be chosen. If it is a case of Hobson's choice, and the soil is thin and light, steps should be taken to improve it by deep digging and liberal manuring; and this work must be done at any favourable opportunity in winter. The plants may be bought and planted in spring.

Neat flower gardeners dress their borders in autumn, cutting down old stems and removing decayed leaves; but they will be well advised to abstain from removing the old leaves of the Torch Lilies.

It is best to retain them as a protection to the crowns, and they will serve this purpose without offending the eye if they are drawn together into a cone and tied in autumn, thus enclosing the crown.

Flower lovers have become more and more keenly alive to the merits of the Torch Lilies these latter years, and consequently the number of varieties has increased rapidly. The different forms of the old species *aloides* alone would make a strong company. Some of them are varieties, others are hybrids, which have been secured by crossing *aloides* with other species. *Lachesis*, *Obélisque*, *nobilis*, *Pfitzeri*, *Saundersii*, and *Star of Baden-Baden* are beautiful sorts, of different colours, from yellow to red. They are vigorous growers, ranging up to four feet high. Of other species may be named *corallina* and its splendid variety *superba*, which grows about two feet high, and has scarlet flowers; *Macowanii*, also about two feet high, and with coral-coloured flowers; and *Rooperi*, four feet high, red. The last named is particularly useful, on account of its long period of bloom.

*Liliums*.—These, being bulbous plants, are described in the bulb section. As there seen, we must certainly introduce some of them in the herbaceous borders.

*Lupins*.—The Lupine (botanically *Lupinus*) was an old flower-garden favourite long before herbaceous plants had attained to the popularity which they now enjoy. Cottagers grew it, as they grew Pinks, and Hollyhocks, and Rockets. They bought the annual forms, with their great seeds as large as Beans, and grew them in borders with Larkspur, and Mignonette, and *Convolvulus*. Perhaps the Lupins have had rather a hard fight of it to hold their own with the great rush of splendid perennial plants that have now come, but there are one or two which have such outstanding merits that they retain favour. Among these is the Tree Lupin, *arboreus*, which grows about five feet high; and still more popular is the white variety of it called *Snow Queen*. This is a strong, upstanding plant, of great worth in the border. Another Lupin that enjoys



great favour is polyphyllus (many leaved) which grows about three feet high, and has blue flowers. It is a very handsome plant, and an accommodating one to boot, thriving in most soils, provided that they are well manured. There are several varieties of it, including a white (albus), a purple (Purple King), and a yellow (Somerset).

Although the great majority of the Lupins are best propagated by seed, division may have to be resorted to in the case of the special perennial kinds, and if so it should be done in spring.

*Michaelmas Daisies.*—The flower gardener whose nature is impressionable, and whose spirits fluctuate with the seasons and the weather, is apt to feel a shade of depression attack him when the summer flowers begin to fade. He does not love, as the Norsemen of whom Rudyard Kipling sings in *Puck of Pook's Hill* do—

“The dear, dark days of winter-time.”

When his borders are a mere sombre stretch of bare earth they contrast painfully with the beauty of the summer. The passing of the earlier flowers is a reminder, and a disagreeable one, that the period of bareness has to come. But it can be shortened (and this is a cheering thought for the impressionist) by providing plants of which the flowering period is naturally late. They are not a numerous band, but they are a very powerful one all the same, because they include Dahlias, Chrysanthemums, and Michaelmas Daisies. Each of these noble plants is a host in itself. It has vigour of growth, free blooming, and bright, varied colours. The Michaelmas Daisy is perhaps the most valuable of the three. It has been dealt with fully under Aster.

*Ox-eye and Pyrenean Daisies.*—These useful plants are Chrysanthemums. The Ox-eye Daisy is *C. Leucanthemum*, and the Pyrenean Daisy (also referred to under Chrysanthemum) is *C. maximum*. The Ox-eye Daisy grows about two feet high, and has white flowers; the Pyrenean Daisy is a little taller, and is also white. These great perennial Daisies have not sufficient

variety of colour to rank with the most valuable of border plants, but they are very useful. They will grow freely in any deep, fertile ground, and are easily propagated by division. In most heavy, well-manured soils they will grow into huge clumps, and will remain a long time in beauty.

*Paeonies*.—By common consent the Paeony is accepted as one of the very finest of our hardy plants. During recent years the number of varieties has grown almost as rapidly as those of Dahlias, Chrysanthemums, and Sweet Peas. They now form a goodly band, rich in vigour, in size of bloom, in brilliancy and diversity of colour, and in perfume. Old impressions of the Paeony were of a somewhat gaudy flower, if anything over-bold. It was not regarded as a refined flower, like an Auricula or a Carnation. Probably some of the old-time florists would turn in their graves at the thought of Paeonies being grown to the exclusion of Bizarre Tulips and laced Pinks, but they certainly are. Perhaps the old-timer would forgive us, however, for our apparent backsliding if he could revisit the scenes of his triumphs with the flowers that are now dying, and see the wonderful improvements that have been made with others. When he saw Paeonies of the softest rose, the most delicate pink, the silkiest crimson, the purest white, Paeonies single and Paeonies double, Paeonies with the powerful perfume of a Damask Rose, Paeonies of the finest form and most exquisite refinement—in short, Paeonies full of beauty, refinement, and charm—his heart would soften, and he would take the flower to his bosom, as a treasure of great price.



DISBUDDING TO OBTAIN LARGE BLOOMS OR SPIKES

Examples: *Paeonies*, *Delphiniums*, and *Carnations*.—A, crown buds to be retained; B, B, side buds and shoots to be removed at dark lines.



Any change which causes so exquisite a flower as the show Auricula to decline seems, on the face of it, to be for the worse; but we have to take a broad view of the question of public taste as it affects flowers. Laced Pinks, green-edged Auriculas, and Bizarre Tulips have declined, not because floral taste has grown coarser, and is unable to appreciate them, but because ideas of flower gardening have grown better. The flowers named have lost their place because they do not serve the purpose of modern flower gardening. The same florist who specialised Auriculas (which he probably did in a frame ground in a sacred corner of the garden) filled his beds and borders with Zonal Geraniums. He was not a flower gardener in the modern sense at all. He did not study flower gardening as it is studied nowadays, and consequently he did not understand it. He knew a great deal about the individual wants of one particular flower, and, *pari passu*, he thought that he knew everything there was to know about all plants, and surveyed the ignorant outer world with a benign tolerance.

Paeonies serve the purpose of modern flower gardeners—that is, of getting beautiful and continuous colour effects—admirably. The herbaceous species begin their good work from the very first, because the shoots which push through the ground in spring come with rich tints of chrome, and red, and brown. At a little distance a bed of Paeonies reminds the observer of a bed of hard-pruned Tea Roses when its shoots begin to open out under the genial influence of a kindly spring sun. There is the same soft, tender glow of colour a few inches above the earth, gradually spreading and deepening as the days pass. The illusion is at once so perfect and so beautiful that the flower-lover almost wants it to linger, even at the cost of losing the flowers.

When the Paeonies have attained to their full dimensions (and in rich, fertile soil well-established plants may spread five or six feet) the Tea Rose resemblance will, of course, have completely

disappeared, but in its place there will be the matured individuality of the plants themselves, with their strong stems, broad leaves, and gigantic blossoms. It is a great point in favour of the plants that the flowers are carried high above the leaves on long, vigorous stalks. Every bloom is boldly displayed. In this respect the Paeony scores over its late companion of the flower garden, the Cactus Dahlia, which shyly hides its flowers among the leaves unless well pruned. The Paeony will want neither staking nor pruning to cause it to play its part effectively. It is not a coy, clinging plant. It is sturdy and self-supporting, and it holds its head up with a sort of regal pride. One might call it a "state" plant—a figure of courts and levees, where proud and noble figures are seen.

The modern garden Paeony is divided into two great classes—the Herbaceous and the Tree. The difference is mainly in habit, and does not extend to character of bloom, as it does in Roses. Herbaceous and Tree Paeonies might be mixed in a group without the ordinary observer being able to distinguish them, whereas he could separate Tea and hybrid Perpetual Roses with ease. The Herbaceous Paeony loses its leaves and stems in the autumn, dying quite away to the root, like a Michaelmas Daisy, and growing again from buds on the underground rootstock in the following spring. The Tree Paeony does not do this. Its stems are harder and more woody, and they do not decay every year. It is true that it generally loses its leaves, so that it cannot be described as an evergreen. It might be designated as a deciduous (that is, leaf-losing) shrub, like a flowering Currant or a Lilac. Both classes have very large and beautiful flowers.

The first requirement of Paeonies is a deep, rich soil, and the second abundance of room. They rarely show their true character in poor, thin, dry ground. It is true that they will grow and flower, but they will not spread into great, broad clumps, and throw up large flowers by the dozen. The grower should aim at excellence,



and it rests entirely with himself as to whether he gets it or not. He should make stations for his clumps of Paeonies wide enough to admit three or four plants standing two feet apart. These stations should be dug two feet deep, and a thick coating of manure worked in a foot below the surface. Extra food can be given in the form of soakings of liquid manure in the summer, and annual mulches of manure on the surface. This is better than regular lifting and replanting, for which Paeonies do not care. They like to push long fleshy roots deep down into moist substrata, and keep them there.

The plants can be propagated by division, but for the reason just given this should not be done frequently. If more plants are wanted, it is better to buy fresh ones than to risk injury to an imperfectly established clump by taking it up and dividing it. Propagation can be effected by seeds, but this method cannot be relied upon for the increase of particular varieties which it is important to keep true. Trade growers often propagate Paeonies by grafting them on to stocks of common kinds, but this work is hardly within the scope of amateur flower gardeners. Such division or fresh planting as may be required should be done any time between October and March inclusive.

It would be very pleasant if we could add to all that has been here said with respect to the claims of Paeonies on the attention of flower lovers that they are cheap plants, but that can hardly be done, at all events as far as concerns modern sorts. These are not cheap. In connection with this, as with all other popular flowers, novelties are expensive. But one can buy very good Paeonies without depleting one's purse severely. The following varieties are good, and not costly:—

#### BEAUTIFUL SINGLE HERBACEOUS PAEONIES.

*Amiable*, cherry.

*Bridesmaid*, white.

*Duchess of Portland*, pink and white.

*Rosy Dawn*, blush.

*Empire*, purple.

*Hecate*, purplish rose.



MONKSHOOD (*Aconitum Napellus*)  
By E. Fortescue Brickdale



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## BEAUTIFUL DOUBLE HERBACEOUS PAEONIES.

<i>François Ortigat</i> , crimson.	<i>Novelty</i> , cream.	<i>Princess May</i> , cream.
<i>Mikado</i> , rose.	<i>Prince Prosper</i> , purple.	<i>Sir Henry Irving</i> , pink.

## BEAUTIFUL TREE PAEONIES.

<i>Beauty</i> , rose.	<i>General Baden Powell</i> , red.	<i>Lady Sarah Wilson</i> , blush.
<i>Captain</i> , white.	<i>James Kelway</i> , carmine.	<i>Snowflake</i> , white.

*Pansies*.—Considering that it is a lowly plant, incapable of yielding those bold masses of colour which the modern flower gardener loves so much, and that it is scarcely compact enough in growth, or sufficiently free in bloom, to form good carpets and edgings (purposes for which its cousin the *Viola* is so admirably adapted), the Pansy holds its own remarkably well. If it is not quite in the front rank of hardy plants, it remains a decided favourite, especially in Scotland, whose sturdy florists raise beautiful new varieties every year, and exhibit them in such exquisite form that every beholder is filled with admiration. Perhaps the Pansy would be most accurately described as a florist's flower which is specialised by a certain number of trade growers and expert amateurs, like the Rose, the Chrysanthemum, the Carnation, the Sweet Pea, and the Dahlia. In the case of all such flowers there is a steady demand for new varieties every year—a demand which varies in extent with the different flowers, but which can be relied upon to make a trade in novelties lucrative. The Pansy has not so large a constituency as the flowers named, but it nevertheless enjoys a very fair one.

Southern growers who, on being worsted by the Scottish florists in a bout of Pansy-growing, declare that there is something in the humid climate of Scotland which particularly suits the plant, are probably right; but they go too far when they assert, as they sometimes do, that it cannot be grown successfully in the south. Provided that care is taken to give it a rich, cool bed, it will thrive and give good flowers. It ought not to be expected to succeed



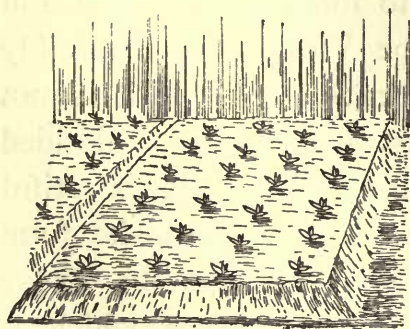
in a shallow bed of hot sand, or in a few inches of poor, dry earth overlying chalk. In such soils special provision has to be made for it. But it will succeed with very little coaxing in moist, clay soils, even in the extreme south of England. In all cases where there appears to be reasonable ground for doubting success under the natural conditions that prevail, the Pansy lover will be wise to add a liberal dressing of cow manure to the soil, at the same time deepening it as much as it will allow. Further, he should spread a coating of cow manure over the bed when the hot weather comes on. If this is considered unsightly, it can be covered with

cocoa-nut fibre refuse. Good soakings of soft water, and of liquid manure, will help matters still more.

The work of the cultivator is easier if he plants fairly early—say by the end of March. At that period the nights, if not the days, are always cool; moreover, heavy showers may be expected. A liberal rainfall and cool nights between them are a great help in getting Pansies well estab-

lished. If planting is not done until May or June (and this is often the case), far more attention is needed to get the plants into free growth. They will probably need liberal watering, and shading during the hot sunshine of bright days.

Pansies are very easy to propagate. To begin with, there is the medium of seeds. Although the plants are perennials, it is quite easy to get them to bloom the same year that they are sown, provided that the seed is put in under glass by mid-March. But it is necessary to remember that seed of the named florist's varieties cannot be relied upon to produce flowers of the same colours as the parents. Seedsmen of repute sell very good strains of Pansy seed, and it may be sown half an inch deep in a pot



BEDS FOR SEEDLINGS

Raised beds for young plants of very rare or delicate kinds, where the soil is cold and clayey.

or box towards the end of winter. A position on a greenhouse shelf, or in a frame, will be suitable. When the seedlings begin to crowd each other they may be pricked off three inches apart in larger boxes, and when they touch again planted out of doors. They should be planted in a cool, moist spot to expedite their growth, then they are certain to become strong enough to flower at midsummer or soon after. The best of the seedlings, and any varieties which have been bought as plants under special names, may be propagated by cuttings in late summer or early autumn. It is not wise to strike them early, and so start them growing before winter, because nothing is gained by it, and they take up more room, need more care, and are more liable to injury from frost, than cuttings put in so late (say October) that they have only time to callus over and make a root or two before the winter. At the time indicated there are generally young, growing shoots on the plants, which will serve as cuttings. If the flowering is so profuse and late that there are no growing shoots, the bloom should be suppressed in September, and a top-dressing of fresh soil given to encourage growth. Bits about three inches long do quite well, and they may be put in just clear of each other in very sandy soil in a frame, or in a box covered with squares of glass. They are not likely to suffer in the winter, but a covering may be put over the glass in very severe weather. They ought to be examined now and then during the winter in order to see that aphid is not establishing itself on them. If any insects are seen they should be brushed off, and destroyed.

What are termed "tufted Pansies" by some writers and florists are *Violas*, and are dealt with under that name. The following are a few beautiful florist's Pansies:—

<p><i>A. M. Burnie</i>, yellow, crimson, and purple.</p> <p><i>Constance Abercromby</i>, carmine, yellow, and black.</p>	<p><i>Constance Steel</i>, rose and white.</p> <p><i>Duchess of Montrose</i>, yellow and black.</p>	<p><i>Henry Stirling</i>, yellow, crimson, and black.</p> <p><i>Mrs. R. Fife</i>, crimson and white.</p>
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*Mrs. W. Sinclair*, blue and yellow.

*Madge Montgomery*, claret and cream.

*Nellie Curson*, yellow, mauve, and brown.

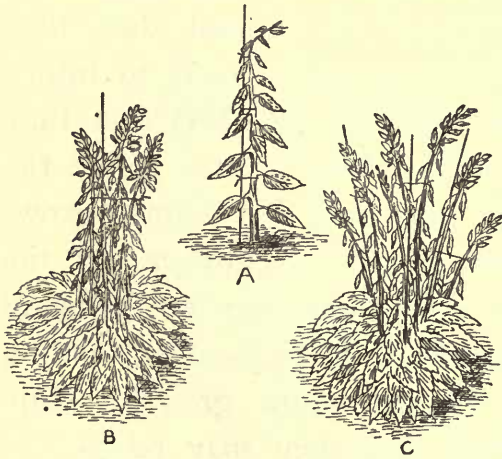
*Niel Mackay*, black and yellow.

*Robert M'Caughie*, yellow, rose, and violet.

*Wm. M'Kenzie*, violet and yellow.

*Phloxes*.—Average height of perennial border species under good cultivation, three feet; flowering season, late spring and summer. Average height of annual section, one foot; flowering season, summer.

The Phloxes are a most beautiful and valuable class of garden flowers. The perennial species are hardy, the annuals not quite hardy. The former class might be subdivided into border and rock Phloxes. The former grow to medium height, the latter are quite dwarf. The perennial border Phloxes bear their flowers in bunches at the summit of slender stems clothed with narrow, lance-shaped leaves. They are of upright, compact habit, yet not stiff. In some of the finest modern varieties the flower heads are of great size—almost as big as Hydrangeas, in fact. The colours



STAKING PLANTS

A, how to stake single plants; B, wrong way to stake plants with several stems; C, right way to stake such plants.

are very beautiful. Though bright, they are not gaudy, but, on the contrary, are soft and refined. There are no more beautiful border flowers than the hardy herbaceous Phloxes, and no border can be considered complete without them. They appear in more than one of our plates. In association with Tobacco plants (*Nicotiana affinis*), with Japanese Anemones and Sweet Peas (the latter, by the way, affords a particularly fine example of the importance of studying the grouping of flowers), or with Asters and Sweet Peas, they are extremely useful and beautiful. These Phloxes are propagated by division and by root cuttings,

preferably when growth starts in spring. They thrive best in light, well-drained, loamy soil. They do not like stiff, cold, undrained land. The flower gardener who has very heavy land should endeavour to dig a few spadefuls of decayed turf into the place where he intends to plant the Phloxes.

The annual Phloxes, varieties of *Drummondii*, are easily raised from seeds sown in an unheated frame early in April, or in the open ground at the end of that month. In either case the seeds should be sown thinly, and any thick patches of plants thinned. When put out they should be planted about a foot apart, and dusted with dry lime in order to baffle slugs, which are very fond of them. Many people credit these beautiful annuals with the responsibility for the decline of the *Verbena*. The flowers are supposed to resemble each other, and such superiority as there is between them to belong to the Phlox. There is certainly some sort of resemblance between *Verbenas* and Phloxes. Both have small, round flowers, with, in the case of most varieties, a clearly defined eye; but there is really no good reason for instituting a direct comparison between the two plants, and setting them in opposition to each other. The *Verbena* has not declined as a flower garden plant to any great extent, but only as a florist's flower under pot cultivation. Both it and the annual Phlox should be grown, and both are best raised from seed.

Seedsmen offer several strains of annual Phlox, but the *grandiflora* (large-flowered) is the best. It can be had in assortments of six or more separate colours, or in mixture. There is a strain about six inches shorter than the *grandiflora* called *nana compacta*. In this also we get a nice variety of colours, but the flowers are smaller.

Named varieties of annual Phlox are not offered, but there are plenty of the perennials. These might be divided into two separate sections, the first of which flowers in early summer, and the second in late summer and early autumn. They have originated



from different species, and are really distinct types. It is important to know this, and to make selections of each, because then a prolonged period of bloom can be insured. In the following list the letter "E" indicates early, and the letter "L" late varieties.

*Atala* (L), rose, white eye.

*Attraction* (E), white, red eye.

*Coquelicot* (L), orange.

*Crépuscule* (L), mauve, red eye.

*Esclarmonde* (L), lilac, white eye.

*James Hunter* (E), pink.

*Ledru Rollin* (L), violet, lilac eye.

*Le Mahdi* (L), violet.

*Magnificence* (E), rose, crimson eye.

*Mrs. Forbes* (E), white.

*Mrs. E. H. Jenkins* (L), white.

*Zouave* (L), magenta, crimson eye.

*Poppies*.—Every country visitor knows one member of the Poppy family, and that is the scarlet kind of the cornfields. Every flower-lover knows another member, and that is the beautiful Shirley Poppy. Many are familiar with the huge scarlet Eastern Poppy, which botanists call *Papaver orientale*. Thus we get by stages to a position in which it becomes apparent that the poppies can be accepted as familiar flowers. But do the majority of flower gardeners appreciate them at their full worth? And do they realise the great variety of material which the genus provides? It is to be feared that the answer to both these questions is in the negative. It is said of Poppies that they are very short-lived flowers. Their brilliance is admitted, but it is pointed out that the blaze of colour which they give is of very brief duration. This is at once correct and incorrect. It applies to some of the annual Poppies, but not to others. And, happily, it does not apply to some of the very finest of the forms—the huge double varieties of the Paeony and Carnation-flowered Poppies, which can be raised from seed just as easily as Mustard and Cress, come into flower in a few weeks, and remain in beauty for no inconsiderable period.

There is yet another criticism directed at the Poppies, namely, that the seedlings will not endure transplantation. This would be a rather serious objection if it were well founded, because it is not always convenient to sow plants where they are to bloom, but it appears to be a complete misapprehension. The writers are great

lovers of Poppies, and have grown them from seeds extensively. In the majority of cases they have transplanted the seedlings, and always with success. It is probable that the belief that Poppies will not endure shifting is due to the little care which some flower gardeners take in handling seedlings, letting them get crowded and drawn in the first place, taking them up when the soil in which they are growing is dry, and putting them out in a sun-baked spot without taking any precautions to get them established quickly. If they are kept thin in the seed rows, so that they become sturdy and well furnished with fibrous roots; are moved when about a couple of inches high, and with the soil sufficiently moist to cling to the roots; are planted in damp soil; and are shaded for a few days after shifting, until it is seen that they have started growing, they will transplant quite well. What is here said applies to the double annual Poppies, and also to such of the perennials as are raised from seed. As far as the Shirley Poppies are concerned, it is not worth while to attempt transplanting. They can be sown in patches in the borders, or broadcast in a bed. Very few plants are more beautiful on a sunny bank than a breadth of Shirley Poppies. The colours are brilliant and varied, and the almost transparent flowers glisten brightly in the sunshine. They should be sown thinly, and then left to nature. Some of the plants will come through later than others, but this fact will tend in the direction of continued flowering, and is therefore an advantage rather than otherwise.

The Eastern Poppy is a grand perennial of brilliant colour. The old plant is of a vivid orange scarlet, but it now has many daughters of different shades, and some are sold under names; indeed, things seem to be tending in the direction of specialising the plant. Whether this is worth while or not, readers must decide according to the degree of their partiality for it. If they grow named varieties, and find them good, they will be wise to propagate them by means of cuttings of the roots, in order to keep them true. The old plant, likewise the popular *bracteatum*, which is a brilliant



form of *orientale*, can be increased by seeds or division. The fine Poppy called *Papaver umbrosum*, and often offered in seedsmen's catalogues under that name, is scarlet, with black internal blotches. It is easily raised from seed, and is a good deal grown. A wise plan of dealing with it is to sow it at the end of May with Wallflowers and Sweet Williams for flowering the following year.

We must not forget the Iceland Poppies, which are as beautiful and valuable as any of the genus, although much smaller in growth. They are delightful little plants for border groups, and also for rockwork, and they come freely from seed. Orange, yellow, and white—all alike are bright, cheerful, graceful, free-blooming plants. The botanist calls them *Papaver nudicaule*.

*Pentstemons*.—A few years ago the Pentstemon (or Penstemon, it is often called, even professional horticulturists often omitting the first "t") was almost an unknown plant. It occupied a corresponding position in the flower garden to what the *Streptocarpus* did under glass. There were several species in the case of both plants, which were mildly admired, and spoken of in a casual way as "well worth improving." But for a time nobody made any particular attempt to improve them, and so they languished in obscurity. However, the inevitable hybridist appeared at last, and we began to get larger forms, with flowers of brighter colours. Once started, the work of improvement went rapidly on, because other florists, scenting profit, began to operate. Now we have a magnificent collection of beautiful varieties. Any one who is interested in comparisons might get seed of one of the old species, such as *glaber*, and grow it in a bed with some of the best of the modern forms, as sold under varietal names by florists.

He will then see what wonders expert cross-fertilisers are capable of accomplishing. It is, perhaps, to the Scottish florists that we owe the greatest debt of gratitude. They now have splendid strains. The bells are larger than the largest Foxgloves—in fact

they are nearly as fine as prize Gloxinias. The colours, too, are rich and diversified.

The flower gardener who cannot afford a collection of the named varieties should get a packet of seeds from one of the firms that specialise in Pentstemons. If he sows under glass early in the year he will get flowering plants the same season. Or he may sow outdoors in May or June for flowering the following year. He is almost certain to get several varieties of the highest merit, and he can mark them, and propagate them by cuttings in October, in order to keep them true. It will be gathered that the Pentstemon is an easily managed plant. There are few more so. If any difficulty arises it is likely to be owing to over-flowering. It is a fault of the right sort, of course, but it is apt to be rather embarrassing, all the same. The plants may throw their whole energies into the formation of flower stems and the sustenance of the huge and brilliant bells that form thereon, so that when autumn arrives there is not a scrap of growth from which to make cuttings. Thus the grower finds himself in serious danger of being unable to increase his favourite varieties. He must exercise foresight, and if he sees that the plants are flowering hard, and making no leaf shoots, he must remove the flower spikes early in September, by which time they may have passed their best, and put a little rich, moist soil round the plants. This will probably have the effect of causing them to throw up fresh shoots, that may be taken off any time in October, or even November, preferably about three inches long, and inserted firmly in sandy soil in an unheated frame or glass-covered box. They will make little or no growth before spring, and it is not desired that they should. They will grow steadily, however, when the warm weather comes, and soon make sturdy plants.

A bed of Pentstemons is almost, if not quite, as beautiful as a bed of Gladioli, and it can be had at much less cost. There is a certain, though not a close, similarity between the two plants.



Both bear their flowers on long, gracefully drooping spikes, and present a great variety of brilliant colours. Many of the best Pentstemons have two clearly defined body colours, the one on the outer part and the edges of the bell, the other on its interior. These are extremely beautiful, and, as a rule, the more sharply the line of demarcation is defined the more pleasing the flowers are.

The plants thrive best in cool, rich, holding soil. They love moisture, and should not be expected to give of their best in poor, thin, dry ground. The wise cultivator will dig his soil two spades deep, and work in a good dressing of decayed manure. This he should do some time in winter, then the ground will be in excellent condition for planting in spring. But Pentstemons may be planted out in beds in which bulbs and other spring flowers have been grown. They can be planted quite well as late as June provided that care is taken to keep the soil moist, and to shade them for a few days if they show signs of flagging. For this reason seedling Pentstemons may be classed with Snapdragons and Indian Pinks as plants of more than annual duration which serve a useful purpose when treated as annuals. So great are their merits that it is perfectly safe to prophesy that they will grow in favour rapidly every year, both as flower-garden plants raised from seed and as special flowers cultivated under names.

*Primroses and Polyanthuses.*—These are hardly herbaceous plants in the ordinary acceptance of the term, because they are not leafless throughout the winter. On the contrary, they grow in mild spells, and are at their best in spring, when the majority of true herbaceous plants are just awakening from their winter sleep. But they come into the scheme of garden decoration of which hardy perennial plants generally form the backbone. Primroses and Polyanthuses may be introduced into herbaceous borders with great advantage, as well as into ordinary flower beds; and here comes in the great value of these most beautiful and accommodating flowers; they can be

shifted into beds and borders in autumn, when the herbaceous and annual plants are fading, and moved out again in the spring, when other plants are coming on. The seasons are reversed; instead of Primroses and Polyanthuses growing in summer and resting in winter, they grow in winter and pursue a calm, easy, though not quite stagnant, existence in summer. In view of the great paucity of winter-blooming hardy plants, it seems astonishing that a plant which is as hardy as a hazel, blooms off and on the whole winter through, and flowers gloriously throughout the spring, should not be grown in every garden; but the fact is that most people associate the Primrose with the yellow wilding of the woodlands, and have no idea that garden forms of great size, and with a wide range of beautiful colours, exist. When they do awaken to the truth Primroses will be as much in demand as Arabises and Forget-me-nots, both of which they greatly excel in variety and value.

The coloured Primroses have been immensely improved in recent years. We have larger flowers and more colours. We have cream, pale and deep yellow, pink, rose, lilac, carmine, crimson, and blue. We have, too, double as well as single flowers. Only a botanical eye can see in these lovely flowers a close relationship with the "rathe Primrose," and the lines of the poet—

"Welcome, pale Primrose, starting up between  
Dead matted leaves of ash and oak, that strew  
The lawn, the wood, and the spinney through,  
Mid creeping moss, and Ivy's darker green,"

seem hardly appropriate to the brilliant garden flower, however admirable in relation to the "Primrose of the river's brim."

Every Primrose flower has its own separate stalk; not so every Polyanthus. In the latter we find that the flower stalk subdivides, as it were, forming a cluster of short stems or pedicels, each of which is surmounted by a flower. Thus, when we have Primroses and Polyanthuses growing together—and they are almost



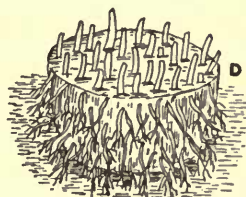
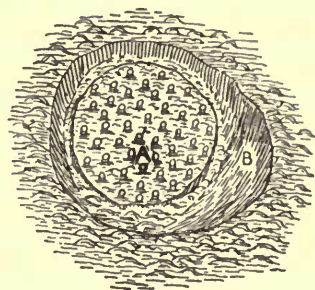
as natural associates as Mustard and Cress—we must call those in which the flowers are borne separately Primroses, and those with the flowers in bunches Polyanthuses. Both can be raised from seed, and if it be home-gathered it may be sown out of doors in a moist, fine seed-bed as soon as it is ripe. The plants can be treated like Wallflowers—that is, thinned, transplanted if they become very crowded (which, however, is unlikely), and planted out where they are to bloom in October or November. If seed has to be bought it should be got in winter, and sown under glass early in the new year. A position on a greenhouse shelf will suit it admirably, or a frame will do. The seedlings may be pricked off into other boxes when they become crowded, and planted out in a nursery bed in a cool, moist place in May or June. They will make strong flowering plants by autumn. The purchaser should make a point of getting his seed from a firm of repute, because the strains differ a great deal. Some seed that will germinate quite well is nevertheless unsatisfactory, because the quality of the flowers which the plants produce is poor.

The best varieties for a good strain of seed may be marked while they are in bloom, and specially propagated. If increased by division they will keep true, but they will not do so if raised from seed. The best time for division is late spring, after the flowering is over. If the plants are large they may be divided into several portions, but care should always be taken to get a distinct part, with roots of its own. The pieces may be planted in a semi-shady spot, in rich, cool soil. A dry position, fully exposed to the sun during the greater part of the day, does not suit them. They may not make large plants during the summer—the probability is that they will not—but so long as they become well established, and make some growth, it will suffice, because they will grow rapidly in spring, and spread into large clumps in a few weeks, flowering all the while. The ground may be prepared for them as soon as it is cleared of its summer occu-

pants, which will probably be in October or November. It should be dug deeply and manured liberally. If the plants are put into beds by themselves they may go fifteen inches apart. But many prefer to have bulbs in the beds as well, in which case the clumps of bulbs may be two feet apart, and the Primroses and Polyanthuses put in the spaces between. They may also be used, with or without bulbs, for the front of herbaceous borders. The Primroses and Polyanthuses are all varieties of *Primula vulgaris*.

*Pyrethrums*.—To the old school of flower gardeners—the school that revelled in carpet beds and ribbon borders—the genus *Pyrethrum* was familiar in the form of its yellow-leaved representative, the Golden Feather. This plant was worked into all kinds of elaborate designs in conjunction with other foliage plants, such as Alternantheras, Iresines, Dracaenas, and Chamaepeuces. The result was a species of plant mosaic, kept flat and close by persistent cropping between finger and thumb throughout the summer. Carpet bedding is now out of date, and the *Pyrethrums* cultivated at the present time are varieties of the Rosy Feverfew, *Pyrethrum roseum*, which differs absolutely from the Golden Feather. The plants are green-leaved, and they have beautiful flowers borne on long stems. It is, of course, for the blooms, and not for the leaves, that we grow them. They rank high among hardy herbaceous plants, and yet are not strictly herbaceous, as they generally retain some of their leaves throughout the winter. Their new growth is made very early, and they may nearly be classed as evergreens.

Every flower gardener must have a collection of *Pyrethrums*,



## LIFTING CLUMPS

A, clump. B, open trench, wider at one part to allow the spade or fork to be worked well under. C, side shoot suitable for planting in case of rare kinds or varieties. D, lifted clump.



and he will be wise if he selects both single and double. He will find them almost equally valuable. If the singles lose a little in comparison with the doubles on the plants—and it is not everybody who will admit that they do—they gain when cut for room decoration, as they look lighter and more graceful. Pyrethrums are valuable in more ways than one. In the first place, they are among the earliest of the border plants to bloom, and certainly the earliest of their own standard of merit. Secondly, they bloom very profusely. Thirdly, they throw their flowers well up. Fourthly, they will flower a second time if the fading blooms are removed. Fifthly, the colours are brilliant and varied. These combine to give them a very strong claim on attention. It might be added that the foliage is distinctly handsome. They are in every respect most valuable plants for borders of hardy flowers, and for grouping in beds with other select perennials.

As far as soil is concerned the Pyrethrums are very easily suited. They will thrive in almost any fertile, well-drained medium, but, as might be expected, the finest plants are produced in rich, deep, fertile ground. Dig deeply, manure generously, and your Pyrethrums will give you a handsome reward. They may be planted either in autumn or spring. If increase is required it may be effected by dividing the plants when fresh growth commences. The following are a few of the best varieties:—

## SINGLE.

*Apollyon*, pink.  
*Ascot*, peach.

*Golconde*, crimson.  
*James Kelway*, scarlet.

*Ornement*, violet.  
*Queen of the Whites*, white.

## DOUBLE.

*Carl Vogt*, white.  
*Edna May*, pink.

*Lord Rosebery*, scarlet.  
*Melton*, crimson.

*Pericles*, yellow.  
*Queen Alexandra*, white.

*Roses*.—Roses are sometimes introduced into herbaceous borders, especially on stumps and pillars. They have been dealt with in a special section.

*Stocks*.—To many people Stocks are only familiar in the form of the popular “German Ten-week” varieties. Beautiful and valuable as these are, from their huge double spikes, rich colours, long duration of bloom, and delicious fragrance, they ought not to be the sole representatives of the genus. The Brompton Stock is also a fine plant, well worthy of cultivation. Like the Ten-week, it is easily raised from seed, but it is best treated as a biennial, being sown in a frame in June, grown sturdily, and planted out, if the position is fairly dry and well drained, in October for flowering the following year. The plants are liable to be destroyed in low, damp places, on which frost settles sharply in winter; and in case of doubt they may be wintered in pots in frames. In the latter event they will be planted out in spring, and a little trouble may well be taken to prepare the ground, thorough digging and manuring being resorted to, preferably a few weeks before planting time. The plants will not be retained after flowering, but fresh seeds sown; thus they become what we call biennials. The Brompton Stocks have bold growth, large flower spikes, and bright colours to recommend them; we may therefore turn to them with confidence.

There is no reason, of course, why the Ten-week Stocks should not be introduced into herbaceous borders if desired. There are often positions near the front of borders where clumps might be planted with great advantage. These beautiful flowers are genuine annuals, but for all that they belong to the same genus as the biennial Brompton—*Matthiola*. Whence the name “Stock,” it may be asked, and whence “*Matthiola*”? “Stock” is an abbreviation of “Stock Gillyflower” (gilloflower or gilliflower). “*Matthiola*” is derived from *Matthioli*, the genus having been named after an Italian of that name. Our flower-loving forebears did not distinguish flowers by separate names so carefully as we do now, and they called several plants which we regard as distinct by the collective name of Gillyflowers. Stocks and Carnations were both



Gillyflowers. This presently led to confusion, which they endeavoured to remove by using the term Stock Gillyflower for the former and Clove Gillyflower for the latter. One had clear stems or stocks, and the other, which was grassy in growth, had clove perfume, hence the distinctive terms. The Gillyflowers referred to in the dialogue between Polixenes and Perdita in the "Winter's Tale" are supposed to be Stocks—

*Pol.* Then make your garden rich in Gillyflowers,  
And do not call them bastards.

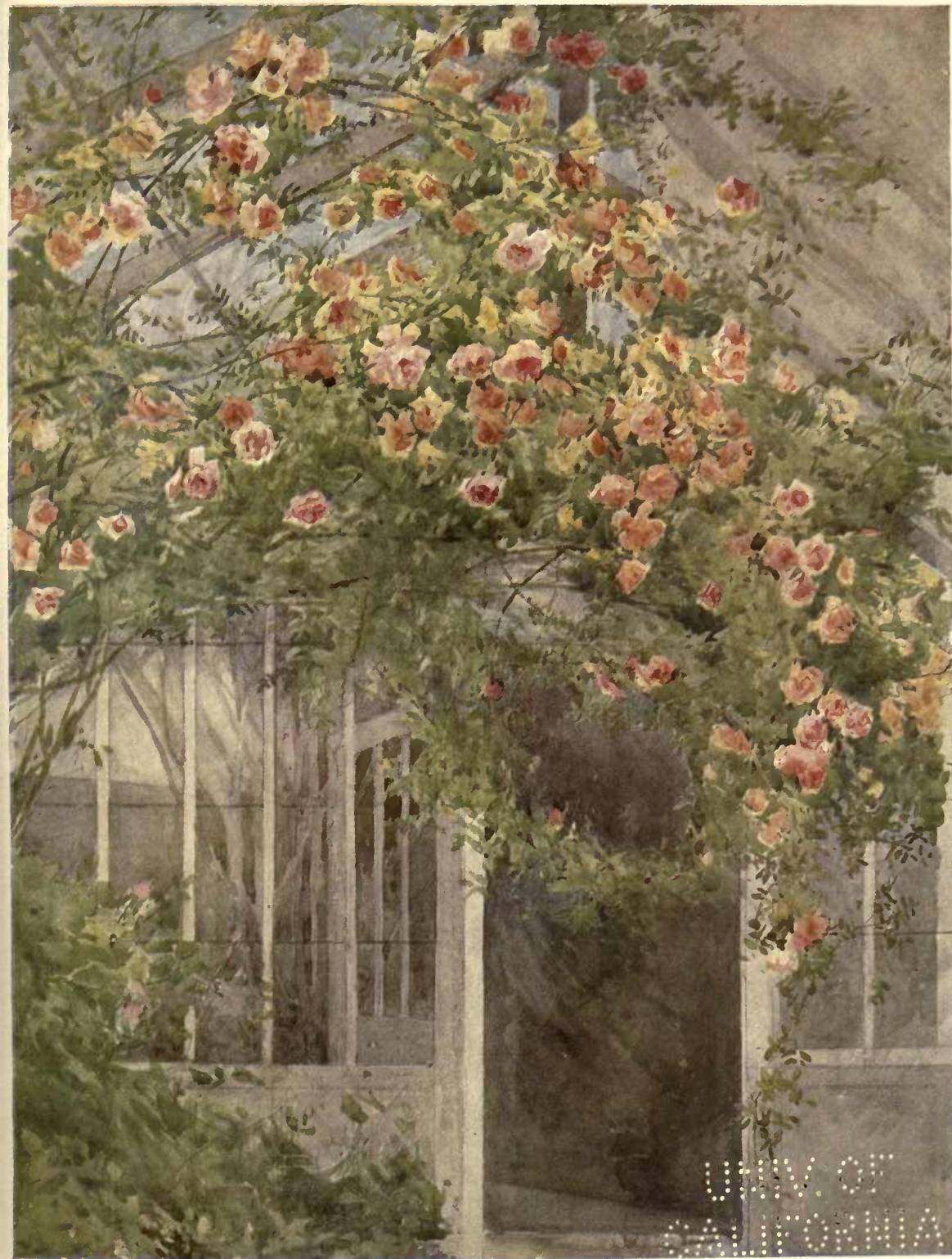
*Per.* I'll not put  
The dibble in earth to set one slip of them."

Perdita would hardly have spoken so contemptuously if she had lived at the present time and seen the beautiful "Stock Gillyflowers" which we now possess. But is it certain that Shakespeare had Stocks in mind, after all, when he wrote this? It certainly seems so, because in a previous passage he makes Perdita speak of—

"Carnations and streak'd Gillyflowers,  
Which some call Nature's bastards."

But if so, he was caught tripping horticulturally, because there could be no call for "dibble" and "slips" in the case of the annual Stock Gillyflower, which would be raised from seed, although they might be fairly applicable to Pinks and Carnations, if propagated by cuttings, as they often were, doubtless.

The Ten-week or annual Stocks which we possess nowadays give a large percentage of doubles, if the splendid strains of the German florists are bought from reliable seedsmen. A strain composed entirely of singles is tolerable, but a strain which is a mixture of singles and doubles in the proportion of two or three of the former to one of the latter is disappointing and troublesome. It is difficult to plant it to advantage, because there is a considerable difference in the size of the plants and the duration of the flowers. The grower must expect a certain number of



ROSE, FORTUNE'S YELLOW  
By Margaret Waterfield





singles, because all the seed is saved from single flowers, and great as are the skill and care of the florist, he cannot insure that every plant raised from seed of a single flower will become double. No reasonable person will expect that. A good strain will yield from seventy to eighty per cent. of doubles, and that is quite satisfactory, because the flower gardener who objects to singles has only to plant three extra in every ten he puts in, to allow for removals when the plants come into bloom.

There may be two or three distinct strains offered in the catalogues. There are almost certain to be two, namely, the "Dwarf German" and the "Giant Perfection." The latter is larger in all its parts than the former, and is more branching in habit, but it is not superior in richness and variety of colour, or in perfume. For the front of beds the dwarf strain is the more useful. In both cases seed can be bought either in mixture or separate colours. It is wise to sow about the middle of March where glass is available; where it is not, and outdoor sowing becomes imperative, the process should be deferred until the end of April. The seed may be sown thinly in a pot, pan, or box of light, sandy soil, and covered a bare half-inch deep. The receptacle should be covered with a square of glass shaded with paper, and placed on a shelf close to the glass in a greenhouse, or in a frame. The soil must be kept just moist, not sodden. When the plants come through, full exposure to light is imperative, and abundance of air should be allowed. The seedlings may be pricked off four inches apart in boxes when they begin to crowd each other, carefully watered, liberally ventilated, and so kept sturdy—truly "stocky." If planted out eighteen inches apart in rich, well-dug soil, they will give satisfaction.

A few seeds of the night-scented Stock, *Matthiola bicornis*, may be sown in a flower-bed not far from the house windows about the middle of April. It is not a beautiful plant, but the perfume is delicious in the evening.



*Sunflowers.*—The Sunflower in its many forms, annual and perennial, is an old-time favourite. Perhaps we hold it a little too cheaply. We have been used to it all our lives, and we may not have learned the differences between the varieties, because it has not occurred to us that the plants are worthy of being studied. We sow them or plant them, and there's an end of it.

“Sunflowers planted for their gilded show,  
That scale the lattice windows ere they blow,  
Then sweet to habitants within the sheds,  
Peep through the diamond panes their gilded heads.

So sings the poet. He is guilty of tautology, for he uses the adjective “gilded” twice in four lines, but when he speaks of their being “sweet to habitants within the sheds,” he knows what he is talking about. He was probably a poultry-keeper, and had learned how fond fowls are of the oily seeds.

Moore was not equally correct, although distinctly more poetical, when he used the figure—

“As the Sunflower turns to her God when he sets  
The same look which she turned when he rose.”

It is a pleasing fancy that the Sunflower follows the sun in its passage of the heavens, but it is not based on fact. Anyone who grows a group of Sunflowers may observe that some flowers are facing the sun at dawn, and some at sunset, but they are not the same flowers; and they certainly do not twist round and follow the sun's orbit.

The Sunflower belongs to the genus *Helianthus*, and there are both annual and perennial forms of it. The former are propagated by seed, and the latter by seeds and division. The annuals may be sown under glass in March, or out of doors at the end of April, and the perennials may be divided at the same period. Most of them are tall, and some are also bushy growers, so that they take up a good deal of space. On this account they must not be planted numerously, especially near the front of beds or

borders, but should be arranged in small groups in positions at the back, where they can develop to their heart's content. They may soar to ten or even twelve feet high, and they will certainly make a brave show, which will last for a considerable time in late summer and early autumn. The double perennial forms are particularly lasting. Both the annuals and perennials love a deep, cool, moist soil, but they are not fastidious. They will need staking, or the first gale will spoil them.

The common annual Sunflower, *Helianthus annuus*, has several varieties, both single and double. Of the former, giganteus and Munstead Primrose may be mentioned. Of the latter, globosus fistulosus is excellent. There is a dwarfed, more bushy annual Sunflower named cucumerifolius (cucumber-leaved), and this, together with its variety Stella, is well worth growing. It flowers very abundantly. There is also an annual Sunflower with silvery leaves, called argophyllus, which is greatly liked by many. As respects the perennials, decapatalus may be mentioned first. It grows about six feet high, and has small, single, yellow flowers, which it bears very freely. The best-known species is multiflorus (many-flowered) single, of which there are several varieties, both single and double. It grows about four feet high, is bushy, and blooms very profusely. The variety maximus is much finer than the parent species. It grows taller, and has larger flowers. There is an excellent double variety called Soleil d'or. The species orgyalis (a soft pronunciation of the "g" lends a distinctly bacchanalian sound to this name) is a very useful Sunflower, partly because it has exceptionally handsome leaves, and partly because it flowers



AN ERROR IN PLANTING

Showing the mistake, or result of planting too near to large trees or shrubs, as the roots of the latter rob the plants of food. A, herbaceous plants; B, tree roots.



later than the majority of the species. Botanists now class the popular plant generally known as *Harpalium rigidum* as a Helianthus, under the name of *H. rigidus*. Probably the old name will cling to it for a considerable time, but the plant is likely to be less and less grown, as the variety Miss Mellish is finer.

*Sweet Williams*.—The Sweet William, *Dianthus barbatus* of botanists, has always been a favourite garden flower, and it was once by way of being a florist's flower on a modest scale, but Roses, Dahlias, Sweet Peas, Carnations, Violas, and others had greater merits, and gradually squeezed it into the background. Nowadays it is rarely cultivated in the florist's "grand style." It is not specialised, and varieties with distinctive names to be propagated by cuttings in order to keep them true, are extremely rare. It is lumped with Wallflowers, Foxgloves, and Canterbury Bells in the class of "useful hardy biennials," and seed is sown out of doors about the end of May for flowering the following year. But these same seedling plants yield a particularly fine variety now and then, if the seed comes from a good source; and it should be known that a superior sort can be perpetuated much more certainly by cuttings than by seeds. The shoots which grow from the base of the plants in summer, and are free of flower stems, are the only kind that there is any good chance of striking, and even these require care and attention, owing to the fact that they are taken in summer, when the weather may be hot and dry. It is well to insert them in a cool, shady place, and to moisten them if they show any signs of flagging.

There are one or two varieties of Sweet William on the market which come true from the seed. Among these is a beautiful salmon pink, a very distinct, bright, and useful variety, dwarf in habit, free-flowering, and well adapted for planting in borders. One gets the best plants of it—as, indeed, of all Sweet Williams raised from seed—when the seedlings are carefully thinned, and the plants are put out nine inches apart in a nursery bed, there

to remain until autumn, and then be transplanted into rich, deeply-dug ground. This ensures very sturdy plants, that are certain to bloom well. They may last several years, indeed become quite perennial, if they are prevented from ripening seed by having the decaying flower heads pinched off; but it is very little trouble to raise fresh plants every year, and all things considered, they give greater satisfaction. One little hint to the reader who gardens in the country, especially near a wood, or a sandhill—'ware rabbits. These pests will destroy the work of several months among Sweet Williams, Carnations, Wallflowers, and other popular things in a night or two if they are permitted free entrance to the garden. They should be wired out, or snared.

Some seedsmen offer seed of a strain of what they call "Auricula-eyed" Sweet Williams. This is the type that the florist specialised in years gone by. It is not every seedsman who has a really high-class strain, but some firms of repute have it and give close attention to keeping it true and good by careful selection for the benefit of certain regular customers. There are also double Sweet Williams.

The origin of the popular name has excited the curiosity of some lovers of the flower, but they have found it difficult to trace it. As a matter of fact, the name Sweet William was applied to more than one plant in past times, notably the Wallflower, which belongs to an entirely different genus. The plant is related to the Carnations and Pinks, and as the specific name "barbatus" means "bearded," the cognomen of "bearded pink" is quite justified. By whatever name it may be called, and whatever the derivation of its several names, the plant must be grown, for, in the words of Cowley—

"Sweet William small has form and aspect bright."

*Tulips.*—The revival of the Tulip has led to the introduction of a large number of beautiful varieties, many of them tall and



stately in growth, with immense flowers of brilliant and varied colours. They are magnificent spring-flowering border plants, and special attention has been devoted to them in the bulb section.

*Violas*.—The *Viola* is an old flower, and yet a modern one—an apparent paradox that requires a word of explanation. When we use the word *Viola* in a garden sense nowadays, we employ it in reference to a plant which occupies as well defined a place in gardens as Carnations and Dahlias. It is a modern plant, represented by numerous beautiful varieties, some of which are grown in nearly every garden. The *Viola*, indeed, rides the wave of popularity, and is likely to do so for many years, owing to its outstanding merits. Some people call it the “tufted Pansy,” and the name is not inapt, inasmuch as the growth is tufty, and the plants are at least as much Pansies as *Violas*. But Pansies play a distinct part from *Violas* in gardens, and besides, it is inadvisable to use two words where one will suffice. How has the modern *Viola* arisen? Undoubtedly by hybridisation between old species and modern Pansies. The Pansy itself is, of course, a *Viola*, *V. tricolor*. By uniting some of the small-flowered but tufty-growing species of *Viola* such as *alpina*, with large-flowered, but non-tufty, Pansies, the florists have raised this modern class of garden *Viola* or tufted Pansy. The plants are distinguished by dense, compact growth, relatively large flowers, rich and diversified colours, and great profusion and persistency in flowering. Qualities like these were bound to make them popular garden plants, and such they have become; indeed, their rise in favour during the last ten years of the nineteenth century, and the early years of the twentieth, was one of the wonders of modern flower gardening.

The *Violas* are not suitable for making bold effects in borders, but they are admirably adapted for forming carpets among tall plants. They can be utilised for this purpose in herbaceous borders and in Rose beds. Those who grow standard Roses in particular

may turn to *Violas*. The area of bare ground, and the stems rising therefrom, are great drawbacks to standards. Plant *Violas* beneath them, and bareness is transformed into beauty. They can also be pressed into service for forming lines and edgings to beds and borders. For edging purposes they look best when planted in bands a foot or more across. If well grown, regularly picked over, and occasionally top-dressed or given a soaking of liquid manure, they will be in beauty for six months.

Those flower gardeners who want to get the best out of *Violas* should make a start by buying plants in spring, and planting them in deeply-dug, well-manured soil. The earlier this is done the better, because when planted early they have a good chance of getting well established before the hot weather comes. But they can be planted up to June and even July, if the grower is prepared to take trouble in shading and watering. It is courting failure to plant in thin, dry, hungry soil. The plants enjoy depth, coolness, moisture, and fertility. Given this they will be full of vigour, and will keep growing for many weeks. They may be planted about nine inches apart. Old plants will give earlier flowers than young ones, but will not bloom so finely or so long.

Constant cutting should be practised throughout the summer. The flowers will be found useful in the house, and apart from that, the regular picking will prevent seed-pods forming, and so keep the plants growing. If they seem disposed to go out of bloom, and get bare-stemmed, they may be clipped in, removing the old, worn growths as well as the flowers, and the soil among them mulched with rich soil. This will encourage fresh growth, and they will soon be in bloom again. Heavy soakings of water and liquid manure will also do them good.

Propagation can be readily effected in autumn by means of cuttings. Flowerless, growing shoots springing from the base are best, and if these are inserted just clear of each other in sandy soil in a frame or small box covered with glass they will pass



the winter nearly dormant, and quickly make strong plants in spring.

The following are beautiful varieties of *Violas* :—

\**Accushla*, white and blue.

*A. J. Rowberry*, yellow.

\**Archibald Grant*, plum blue.

\**Ardwell Gem*, primrose.

\**Blue Cloud*, white, blue edge.

\**Bullion*, deep yellow.

\**Countess of Hopetoun*, white.

*Crieffie Smith*, black and lavender.

*Councillor Waters*, purplish crimson.

*Duchess of Argyll*, white, purple edge.

*General Baden Powell*, orange.

*Hector Macdonald*, white, purple edge.

\**J. B. Riding*, mauve.

\**Mauve Queen*, mauve.

*Mrs. C. McPhail*, heliotrope.

*Minnie J. Ollar*, cream, edged purple.

\**Rolph*, blue.

\**Snowflake*, white.

\**True Blue*, dark blue.

\**William Neil*, rosy lavender.

\**W. P. A. Smith*, cream, heliotrope edge.

Those marked \* are particularly free-flowering and good for the garden.

*Wallflowers*.—A delicious old-fashioned flower is *Cheiranthus Cheirii*, popularly known as the Wallflower. Who does not know it? Who does not love it? Its spicy fragrance greets us in spring, and reminds us of the cottage gardens into which we loved to peep in childhood's days. It is an old, old flower, but just as great a favourite with us as it was with the gardeners of past days. Its love for stony cliff sides, and for the crumbling walls of old ruins, is well known. There it gets what appears to be a precarious foothold, and flowers most cheerfully—

“And where my favourite abbey rears on high  
Its crumbling ruins, on their loftiest crest,  
Ye Wallflowers, shed your tints of golden dye,  
On which the morning sunbeams love to rest.”

Thus sings Barton. On various cliff sides by the sea, notably under the far-famed Leas at Folkestone, the Wallflowers form colonies as happy and as sweet as those on ruined walls. They have probably been planted there by the town gardeners some time or other. In olden days the Wallflower used to be called the “wall-gillyflower,” but this was abbreviated to Wallflower, just as “stock-gilly flower” was reduced to plain “Stock.”

Of course the Wallflower is not restricted to culture on walls



HIPPEASTRUMS (AMARYLLIS)

By Beatrice Parsons





and cliff sides, but is cultivated in gardens, and happy as the plant seems to be in positions where it can get little moisture, as in dry limestone crevices, experience teaches that it not only grows in the deep, rich soil of cultivated beds, but makes finer plants there than on the walls. It may seem a little surprising, in view of the plant's love for a dry site, but our finest plants have developed on deep, cool, fertile clay. They are best grown as biennials—that is, sown at the end of May, thinned, set out a foot apart in a nursery bed when they begin to crowd each other, and planted out in October or November for blooming the following spring. The best selections come quite true from seed. Of singles there are the following:—

*Belvoir Castle*, yellow.

*Faerie Queen*, citron.

*Ruby Gem*, ruby.

*Eastern Queen*, dark apricot.

*Harbinger*, brown.

*Vulcan*, dark red.

The double German Wallflowers are splendid, Stock-like plants, which may be raised from seed; and the newer Annual Wallflower, which blooms the same year from spring-sown seed, must not be forgotten.

#### VARIOUS HARDY PLANTS

While the majority of flower gardeners will form their borders and beds principally with the popular plants dealt with in the foregoing notes, some, at least, will also use other flowers. The number of distinct kinds of herbaceous plants is enormous, and some of those which are little known to the great flower-loving public, but are familiar enough to people who make a study of hardy flowers, are extremely beautiful. The fact that many amateurs proceed to absurd extremes, and fling themselves into a state of ecstatic rapture over any plant which happens to be hardy and herbaceous, should not deter sensible and level-headed people from making themselves acquainted with really beautiful and worthy plants. Let us pick out a few of the best of the less-known hardy flowers. If we put them into three sections—dwarf (not



exceeding two feet high), medium (two to three feet high), and tall (upwards of three feet high)—the planter will have a useful guide to arrangement; but it may be well to point out that height varies with soil, situation, and culture. Nearly all of those selected may be propagated by division in spring, and many by seeds.

### DWARF HERBACEOUS PLANTS

(Some of the quite low-growing plants in this section are reserved for consideration under Rock Plants.)

*Achillea*.—About the best plant in this genus is the variety of Ptarmica called The Pearl, which has double white flowers. It is very useful.

*Anchusa italica* (*Boragewort*).—Free flowering, and of a rich, dark blue.

*Anthericum Liliastrum* (*St. Bruno's Lily*).—A graceful plant with white flowers.

*Armeria cephalotes*.—A bright and free-blooming plant with pink flowers.

*Cheiranthus Marshallii*.—A species of Wall-flower, with brilliant orange flowers.

*Centaurea montana*.—One of the Corn-flowers, with blue flowers. The common Cornflower, an annual, is *Centaurea Cyanus*.

*Corydalis lutea*.—A beautiful yellow-flowered plant.

*Delphinium nudicaule*.—This differs greatly from the florists' Delphiniums, which have already been treated on. It grows about two feet high, and has red flowers.

*Dicentra* (*Dielytra*) *spectabilis*.—The Lyre Flower or Bleeding Heart. A graceful plant with pink flowers, procurable in the form of dry roots from bulb-dealers in the autumn.

*Dodecatheon Meadia* (*American Cowslip*).—A pretty plant, of which the bulb-dealers will furnish a supply in autumn. Colours various.

*Erigerons* (*Fleabanes*).—Good plants. *Aurantiacus*, orange; *Manescavi* (Heron's Bill), pink; and *speciosus*, violet, are all worth including.

*Funkias* (*Plantain Lilies*).—Graceful plants. *Grandiflora*, white, is about the best.

*Gentians*.—The taller species, such as *Andrewsii*, may be grown in the border; the dwarfer ones are best kept for the rockery.

*Geraniums* (*Crane's Bills*).—These are, of course, very different from the Zonal "Geraniums," which are tender plants. Of the hardy species *sanguineum*, red, and *Endressi*, pink, are two of the best. They are strong growing and very free-flowering plants, which will be found extremely useful.

*Geums* (*Avens*).—Bright and free-flowering. *Coccineum*, scarlet, is the best known.

*Gillenia trifoliata*.—Pink.

*Helenium pumilum*.—A very free-flowering plant, with yellow flowers. The variety *striatum* is also good.

*Hemerocallis* (*Day Lilies*).—Among the most desirable of border plants, owing to their bright flowers and very graceful habit. *Dumortieri*, orange, is one of the best species, but there are now several beautiful hybrids on the market,

which, if rather too expensive for the majority of people, may appeal to some.

*Heuchera sanguinea*.—A beautiful plant with rosy red flowers, well worth specialising. There are several varieties of it, all pleasing and graceful.

*Incarvillea Delavayi*.—Large, funnel-shaped crimson flowers.

*Inula glandulosa*.—A beautiful plant, with deep yellow flowers, very striking and handsome.

*Hypericums* (*St. John's Worts*).—Valuable plants on account of the fact that they thrive in shady positions. They produce yellow flowers.

*Lobelias*.—Everybody knows the little blue annual *Lobelia*, which is used for edgings, and is a tender plant. Those now referred to are the tall, hardy kinds, such as *cardinalis*, red, and *syphilitica*, blue. They are splendid plants. Several distinct varieties of *cardinalis* are offered by the nurseryman.

*Lychnis*.—The best of this genus, which includes the *Campion*, is perhaps the beautiful double rose kind called *Viscaria flore pleno*.

*Meconopsis cambrica*.—This is the yellow Welsh Poppy.

*Monarda didyma*.—This is the perfumed Bergamot. The flowers are red.

*Orobis aurantius*.—A useful yellow flower.

*Ourisia coccinea* (*Bear's Ear*).—A very distinct and pretty little plant, with red flowers.

*Physalis* (*Winter Cherry*).—Handsome on account of the bright coral or scarlet calyxes or pods, which are the finest in the species *Francheti*.

*Potentillas* (*Cinquefoils*).—Dwarf plants, with leaves much resembling those of Strawberries, and bright and varied flowers, both single and double.

*Polemonium caeruleum*.—The blue Lungwort, a very pretty plant.

*Primula japonica*.—A beautiful plant, with flowers of deep rose or crimson, borne in tiers (whorls). It loves the water-side. *Denticulata*, lilac, is also a pretty *Primula*.

*Ranunculus aconitifolius plenus* (*Fair Maids of France*).—White.

*Sanguinaria canadensis* (*Bloodroot*).—A distinct and attractive plant, with white flowers.

*Saxifragas*.—Most of these are rockery plants, but *granulata*, white, can be grown in the herbaceous border with advantage.

*Scabious*.—The species *caucasica*, which has large, single, flattish, pale blue flowers, should be grown, as it is extremely beautiful.

*Senecio pulcher*.—A very beautiful plant, with purplish-rose flowers.

*Spiraeas*.—The *Spiraeas* (*Meadow Sweets*) are really shrubs, but several of them, and particularly *palmata*, red, are used in herbaceous borders.

*Statices*.—Several of these are desirable plants, and one of the best of them is *latifolia*, which has blue flowers.

*Thalictrum anemonoides* (*Meadow Rue*).—Pink flowers.

*Tiarella cordifolia* (*Foam Flower*).—Beautiful, feathery heads of white flowers. Likes a shady position.

*Tradescantia virginica* (*Spiderwort*).—Blue—a pretty plant with slender leaves. There is also a white form.

*Trillium grandiflorum* (*American Wood Lily*).—A beautiful white flower, loving shade. Bulb-dealers supply it in autumn.

*Trollius* (*Globe Flower*).—Bright and cheerful plants, flowering in late spring. *Europaeus*, the best-known species, has pale yellow flowers, but there are several forms of it. *Asiaticus*, another well-known kind, has also yellow flowers, but of a deeper shade, and there is an orange-coloured form of it.



## PLANTS OF MEDIUM HEIGHT

*Achillea Millefolium roseum* (Milfoil).—A free-flowering plant with pink flowers.

*Centranthus ruber* (Valerian).—This is the plant sometimes seen growing wild on railway embankments; the flowers are in various shades of red. There is also a white Valerian.

*Coreopsis*.—There are several good species of this genus, notably lanceolata and grandiflora, both of which are yellow flowered.

*Echinops Ritro*.—A plant with metallic flowers, blue in colour, and much resembling an Eryngium.

*Eryngiums* (Sea Hollies).—Exceedingly distinct plants, with metallic, spiny flowers, principally blue in colour. There are several species.

*Geranium pratense*.—Another of the Crane's Bills, with blue flowers.

*Hemerocallis flava*.—Another of the Day Lilies, with orange flowers.

*Lychnis*.—Coronaria, red, and Vespertina flore pleno, double white, are two good plants.

*Spiraea filipendula*.—Free-blooming, cream.

In the above section the flower gardener will also include Campanulas, Irises, Liliiums, Paeonies, Phloxes, and Pentstemons, which are dealt with separately.

## TALL PLANTS

Several very fine plants come into this section. Asters (Michaelmas Daisies) and Helianthus (Sunflowers) have already been dealt with.

*Acanthus mollis* (Bear's Breech).—A good plant with purple and white flowers, but perhaps most remarkable on account of its very distinct and handsome foliage.

*Aconitum* (Monk's-hood).—A plant of grim and evil repute, owing to the extremely poisonous nature of its roots, nevertheless very handsome, with its tall stems of dark-blue flowers.

*Bocconia cordata* (Plume Poppy).—A very distinct and handsome plant, with broad, spreading foliage, and tall spikes of cream-coloured flowers.

*Boltonia asteroides*.—An autumn-blooming plant with pale lilac flowers; very

closely resembling a Michaelmas Daisy. It blooms freely.

*Dictamnus albus* (Burning Bush).—A tall white perennial, the stems of which bear an inflammable resin, that ignites if a light is put to it. The variety Fraxinella is purple.

*Epilobium angustifolium* (Willow Herb).—A tall and graceful plant with red flowers, doing well near water.

*Eremurus*.—The Eremuri are stately and beautiful plants, the flower stems of which rise five or six feet high. Robustus, pink, and himalaicus, white, are both very fine.

*Galegas* (Goat's Rues).—Very free-flowering

and long-lasting plants, that succeed in nearly all soils, but best in a deep, moist medium. The species officinalis is lilac, but there is a white variety, also one with variegated leaves. All are useful and graceful.

*Gynerium argenteum* (*Pampas Grass*).—

A beautiful plant for an isolated position on a lawn. It is at its best in early autumn, when the white, silky plumes are fully matured.

*Polygonums* (*Knotweeds*).—Two useful species are *cuspidatum*, white, and *sacchalinese*, yellow.

*Romneya Coulteri* (*Californian Bush Poppy*).

—A glorious, shrub-like plant, growing to large proportions, and bearing immense, single white flowers. It is not quite hardy, and some dry litter should be spread over the stool in the winter.

*Rudbeckias* (*Cone Flowers*).—Useful perennials, growing in moist soils, and flowering freely. *Grandiflora*, purple with yellow, and *maxima*, yellow, are good species.

*Solidago speciosa* (*Golden Rod*).—A graceful and beautiful plant, with pendent plumes of yellow flowers in late summer.

*Spiraea Ulmaria* (*Meadow Sweet*).—One of the most useful of the *Spiraeas*; white flowers.

*Verbascums* (*Mulleins*).—Tall plants, mostly with yellow flowers. *Chaixii* and *olympicum* are two of the best-known species.

*Veronica longifolia subsessilis*.—A valuable blue-flowered perennial.

*Yucca angustifolia* (*Adam's needle*).—Large heads of cream-coloured flowers, very handsome.



## ROCKERY PLANTS

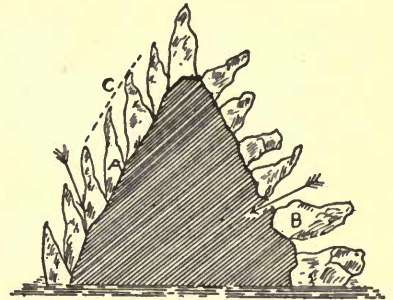
No phase of gardening is more interesting to that large number of persons which loves to take its hobbies seriously than the cultivation of rock plants. Some people enjoy gardening in a light and airy sort of way. They like just to "stick things in," and then leave them to look after themselves. They are not prepared to take much trouble; the necessity for that makes gardening irksome to them, and robs it of its charm. Others are so earnest by nature, so thorough and painstaking in everything that they do, that they would no more think of taking their gardening lightly than they would their devotions, or the training of their children. They are conscientious, perhaps even to a fault. In their play, as in their work, they study detail with infinite and loving care.

Successful rock gardening is not a process of "sticking in." It calls insistently for detail. It is exacting. While rock plants as a class have much in common they also have individual likes and dislikes. One cannot put out a collection of rock plants in the same way as a farmer can turn a flock of sheep into a field, and let each look after itself. The making of the rockery is in itself a considerable undertaking, calling for much care, judgment, and knowledge.

It is with no desire to frighten flower-lovers away from rock gardening that its somewhat exigent nature is pointed out. Many people will be attracted to it by this very fact. The point which we think it desirable to establish at the outset is that the cultivation of rockery plants is a different and more serious matter than the handling of a few bedding plants. And having gone so far it is desirable to go a little further, and make it clear that rockwork

is comparatively expensive. Given half an acre of garden devoted to herbaceous borders or bedding plants, and a similar area devoted to rockeries, the last would be much the most costly. This arises partly from the cost of construction of the rockery, and partly from the greater number of plants required.

Whether a rockery is too expensive a luxury for any particular flower gardener or not, must of course depend upon circumstances. An important factor is the stone supply. Is it near or far? Have you a quarry within easy distance for carts, or would you have to send one hundred and fifty miles for stones, and then have to cart them three or four miles, owing to being a considerable distance from a railway? Much turns on the reply to these questions. Remember that stones, and large, hard stones, are really necessary. Hotch-potch rockeries made up of clinkers are only satisfying to those who have seen no other. Directly the owner of a clinker rockery sees one made well with suitable stones his pleasure in his property departs, because he sees that it is unnatural. In rock gardening we set ourselves deliberately to copy nature. We not only elect to grow good plants, but also to grow them in a particular environment, such as they would have in a state of nature. No one who can get hard stone locally need hesitate about starting rock gardening, for with a charge for stone of no more than five or six shillings a ton, the cost is not going to be excessive. If, however, the necessary stone has to be got from a distance, at a possible cost of a pound to twenty-five shillings a ton, it is well to carefully calculate matters before making a start. One obvious way of reducing the cost of a rockery that a person who is bent upon having one, and yet has only a little money



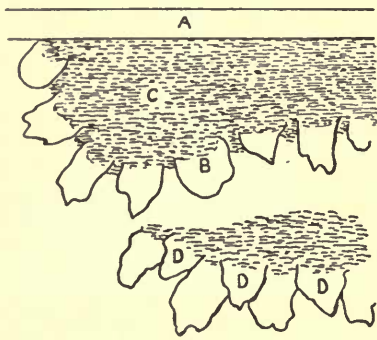
CONSTRUCTION OF ROCKERIES

Right and wrong way to fix the stones. Long, or round-shaped rockeries. A, wrong way; B, right way. The arrows show that on A side there is no space left for soil, but there is on B side. C shows stones too formal as regards placing.



to spare, can adopt, is to have a small one. It is not large rockeries alone which yield pleasure.

Having made a concession to conscience by pointing out certain facts which must be taken into consideration by those who contemplate establishing a rockery, the writers gladly turn to the more agreeable task of indicating some of the special pleasures and advantages of rockery flowers. In the first place, let us pay a tribute to their intrinsic beauty. Among Alpine plants we find some of the most exquisite of all floral gems. Many are evergreens,



CONSTRUCTION OF ROCKERIES

Ground-plan of rockery against a wall. A, wall; B, stones; C, soil. D shows second layer of stones coming irregularly between the first laid down.

or, to coin a word, "ever-silvers," since their leaves are grey or white. There is great diversity of habit and foliage among them. The flowers are of the most delicate and refined beauty. Their colours are fresh, clear, and sparkling. Then there is the prolonged period of beauty. Some of the plants come into bloom in the winter.

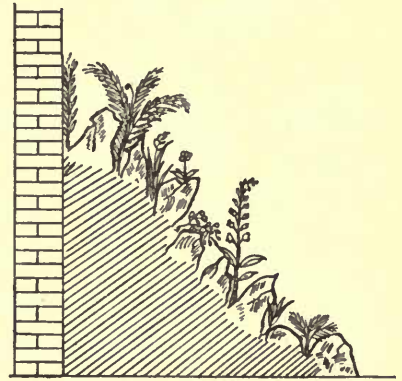
Many—in fact, the majority—flower in spring. There are plants which flower in summer, and others which

bloom in autumn. Thus our gardening interest is not allowed to lie dormant during any part of the year. It is being constantly stimulated. We are led on from day to day, from week to week, from month to month, by the never-ending succession of charming flowers. The well-managed rockery is rarely bare of flowers, and it is never absolutely without colour, either of leaf or bloom.

Over and above these considerations there is what is spoken of, somewhat indefinitely, perhaps, as "interest." Rock plants are deeply, intensely "interesting." They attract our thoughts, engage our affections, stimulate our minds. We cannot treat them cavalierly. If we study them at all we become absorbed in them. All

this, however, makes for our good, because the best side of our nature is being brought into prominence. There is one other consideration worth mentioning, which is that when once our rockery is formed the work associated with it is not laborious, but light. This will not appeal to young, strong, healthy, energetic people; it will, however, do so to elderly and delicate folk, who love flowers, but are unequal to the fatigue of general gardening. And in this connection it may be pointed out that rock gardening presents an almost ideal form of indulgence in the pleasures of cultivating flowers for ladies, to whom the delicate beauty and fragility of the Alpine gems form a special appeal.

Now for a few practical points in connection with making and furnishing rockeries, beginning with the stones. In countries where chalk hills exist it is generally possible to buy a form of limestone called "rag." It varies in hardness in different districts. Where quite soft it is not suitable for the purpose, as it crumbles quickly under the influence of the weather. A limestone, however, that is hard enough to require considerable force to break it up will do very well. It may not be ideal stone, but it is quite suitable, and persons of narrow means need not hesitate to use it. If procurable locally it is very cheap. Sandstone is excellent for the purpose in view. It is harder than "rag," but, as a rule, the cost is greater. Derbyshire spar is splendid stone, and those who lay themselves out for doing rock gardening thoroughly well, and are not stinted for money, frequently employ it, buying it through one of the nurserymen from whom they procure their plants. The stone is cheap enough at the quarries, but the freightage frequently makes the cost considerable. The advantage of buying the stone



CONSTRUCTION OF ROCKERIES  
Section of rockery against a wall.



through a florist is that he generally knows how to go about getting it in pieces of the right size and shape. This is a very important consideration. One might buy a ton of stone in two or three lumps, but that would be useless, except for very large rockeries indeed. Moderate-sized pieces, weighing from five to ten pounds, and nearly flat, are the most suitable. Large pieces that are nearly as thick as they are long are not desirable.

The superior utility of flat stone over thicker material quickly becomes apparent when the rockery-builder begins his operations; in fact, it will be apparent to him if he first visits a good rock garden, in search of practical hints to guide his work. It is unfortunate that such examples are not to be found in more of our public parks and gardens, where they might well take the place of part of the overdone "bedding-out." There are good reasons, of course, why a certain amount of bedding must be done, and we do not suggest that rockeries should wholly take the place of flower-beds, because we are well aware that the funds available for conducting public gar-



#### CONSTRUCTION OF ROCKERIES

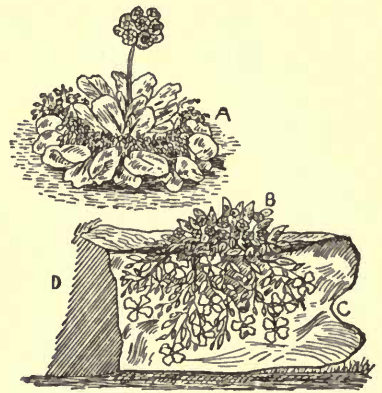
Showing how to place stones for large and small plants. Top figure—A allows ample space for soil for large plants between stones B, B. Left figure—succulents B, growing in small quantity of soil on flat stone A. Right figure—specimen planted at A; growths B depending gracefully over edge of rockery stone.

dens are limited; moreover, we realise that something very simple and bright is needed to please the public. But there should be examples of rock gardening for the benefit of people of more culture, who, after all, help to pay for the maintenance of public gardens. As things are, it is practically only in a few of the largest botanical gardens, such as Kew and Edinburgh, that instructive specimens of rock gardening can be seen.

Alike for effect, reasonable economy in the use of stone, and for the benefit of the plants, the rockery-builder should use his material sparingly. It will help the Alpine lover to practise

moderation in this respect if he will make a point of paying a preliminary visit to an existing rock garden, made by an expert, if he is fortunate enough to know of one, either public or private, within reasonable distance, to which he can get access. He will probably find that the number of stones used is quite small, that on the whole they are fairly large and flat, that they are fixed in position very firmly, and that they are disposed in such a way as to form roomy pockets or beds. He will probably see that where the stones are laid flat the inner portion of the stone is a little lower than the outer part; in other words, that they have a downward slope towards the soil. The object of this is to carry rain inwards to the plants, instead of outwards away from them. Where stones are placed on end so as to form pockets they will probably be tilted inward at the top, so that the pocket is widest at the bottom. This again favours the reception and retention by the soil of moisture, which, on elevated mounds, always tends to drain away from the plants and leave the soil too dry.

A person who has sloping ground in his garden, or anything in the way of a ravine, small or large, can take advantage of it for his rockery. If he has to work on a perfectly flat site he will have to form a mound, small or large, regular or irregular in shape, according to his means and tastes. A rocky ridge may be constructed that winds in gentle undulations, advancing here, receding there, so as to form little promontories and bays; or there may be parallel ridges, with a central path winding through them. Experienced rockery-builders are very skilful in forming such gardens, and turn a bare flat into an Alpine region in miniature with great cunning. Beginners will perhaps act wisely



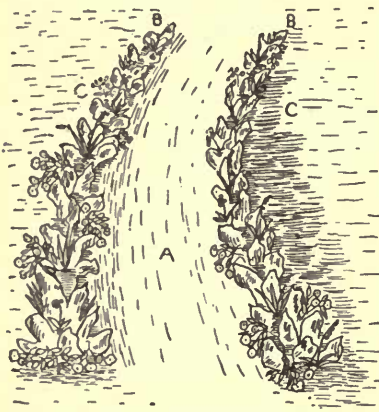
ROCKERY PLANTED

A, miniature rockery; B, succulent and trailing plants growing in hollow of large rock C; D, soil in which rock is embedded.



by contenting themselves for the first year or two with a plain rock bed or mound, and proceeding to more elaborate things after they have gained experience. In any case, however, they will be wise to choose a sunny position, because rock plants love the sun. Such few as do best with shade and a great deal of moisture can be placed near the foot, or on the north side of large, vertical stones.

Whatever be the size of the rockery it will be worth while to pay particular attention to the provision of fertile soil. Good, fibrous



ROCKERY EDGINGS TO PATHS

A, path; B, B, rockeries; C, C, borders.

loam is the best, for it will grow the great majority of Alpine plants successfully. Fibrous loam is the under part of turf which has been stacked until the grass has decayed. It is not always easy to get turf at a reasonable cost—say, threepence per square yard—but the rockery-builder should always look about him, and try to procure it. He ought, indeed, to begin his foraging some months before he wants to commence his rockery, because then he can

stack the turf in a heap, grass side downwards, preferably with decayed manure, or leaves, between the layers, near the site of his rockery, and so be sure of an adequate supply of suitable material when the time comes to begin. If he does not do this he must do one of two things when he commences his rockery—either use the ordinary soil of the garden, or buy the necessary supply of special material. It is not often that the former can be spared in quantity, or that it would be good enough if it could. And as regards buying what is required, it is a somewhat expensive undertaking, and needs circumspection. The buyer should see a sample before he parts with his money, and satisfy himself that the soil is friable, and contains plenty of fibre. The soil

question, equally with the stone question, must be taken into consideration in connection with the formation of a rockery, and provides a further reason for careful preliminary consideration.

We have said that rock plants are extremely beautiful. They are, of course, low-growing for the most part. It is permissible to plant a few tall things in a rock garden, but the great majority must be dwarf. For this reason nothing need be said about height in the following jottings about rock plants, although it is so important in connection with border flowers. Care must be taken to provide for plenty of spreading carpeters that will cover the face of stones and clothe them with bloom, such as perennial Candytufts (*Iberis*), *Aubrietias*, Yellow Alyssum, and *Arabis*. It is also desirable to provide for as long a period of bloom as possible, and it will help the planter if we class the plants we propose to recommend in four distinct flowering seasons, beginning with spring.

### SPRING-BLOOMING PLANTS

The largest proportion of the rock plants flower in spring, and consequently we shall have no difficulty in making a selection. We will give the colours of the flowers in each case, and put the figure (1) against a few plants which, being both good and cheap, will particularly suit growers of limited means.

*Adonis vernalis*.—A charming plant with yellow flowers.

(1) *Alyssum saxatile compactum*.—A spreading grower, with yellow flowers, that will speedily cover a wide area. It comes readily from seed sown in June, and is a very inexpensive and beautiful plant.

(1) *Anemones*.—Several of this beautiful genus are desirable, notably *nemorosa* *Robinsoniana*, a charming blue; and *Pulsatilla*, the Pasque-flower, violet;

*Blanda*, blue; *apennina*, blue; *fulgens*, scarlet; and other dwarf *Anemones* are also well worth including.

*Antennaria tomentosa*.—The beauty of this plant lies in its silvery foliage, which spreads into a broad carpet of white.

(1) *Arabis* (*Rock Cress*).—One of the indispensables. Experienced rock gardeners may feel no interest in it, as it is so abundant as to be almost as common as Zonal "Geraniums," but beginners, and those who have to garden econo-



mically, must include it. The single is easily raised from seed sown in June, and the double may be propagated by cuttings. The former spreads the faster; the latter is the prettier as a flower.

(1) *Arnebia echioides* (*Prophet Flower*).—A distinct and charming plant; the prevailing colour is yellow, but the flowers have dark dots when young.

(1) *Aubrietias*.—As valuable as Arabises, coming from seed as readily and as cheaply, flowering as profusely, and having brighter colours. Every rock garden must contain some of these beautiful carpeters, notably Campbelli, violet, and Leichtlinii, rose. If the seed catalogue that is consulted does not name these, but includes *graeca* or *purpurea*, buy either of these for raising plants in quantity, and procure a few plants of the others at the first opportunity.

(1) *Cerastiums*.—Like the *Antennaria*, these are used for their silvery foliage. There are two species, *Biebersteinii* and *tomentosum*, both of which are procurable quite cheaply from several seedsmen. They are of low growth and spread freely, even in soil that is not of the best.

(1) *Crocuses*.—Every flower gardener is familiar with the early Dutch Crocuses, particularly the yellow, which he buys from bulb-dealers in autumn. A few of these may be planted on the rockery if desired, but there is more interest in the species, such as the orange *aureus*, the white *biflorus*, the purple *imperati*, and the lilac *Sieberi*. It is not every bulb-dealer who offers these, but they are not difficult to get.

(1) *Cyclamens*.—The hardy *Cyclamens*, such as *coum*, rose; *hederaefolium*, purple; and *europaeum*, red; are dainty little flowers, which come in autumn,

winter, and spring. They make a charming picture at Kew in association with *Snowdrops*. Corms are procurable from bulb-merchants at no great cost.

(1) *Dianthus*es (*Pinks*).—One of the most valuable of all the many genera of rock plants, these lovely sisters of the *Carnation*, the *Pink* and the *Sweet William* are distinguished by brilliant, sparkling colours, and great abundance of bloom. The *Alpine Pink* (*alpinus*), *rose*, and the *Cheddar Pink* (*caesius*), *rose*, are two of the most beautiful species, and they are not at all expensive.

*Dodecatheon* (*American Cowslip*).—An interesting and uncommon looking plant, with lilac flowers. The bulb-dealer will supply it in autumn at a very moderate rate.

*Erinus alpinus*.—A useful plant with violet flowers.

*Erythronium* (*Dog's-tooth Violet*).—A very pretty and distinct plant, almost equally admired for its flowers and its leaves. The latter are quaintly marbled. There are several different sorts, and *dens-canis*, *rose*; *giganteum*, white; and *grandiflorum*, yellow; may all be grown. The first can be bought from almost any bulb-dealer in autumn, and is a cheap plant; the others are in fewer hands, and may be a little more expensive.

*Gentians*.—These give us that scarce colour—pure, deep blue. *Acaulis* is the finest. It has large flowers full of rich colour. *Verna* is also very pretty.

(1) *Hepaticas*.—These are really *Anemones*, and their full, correct name is *Anemone Hepatica*, but they are grown in nearly all gardens, and included in most bulb lists, simply as *Hepaticas*. They are delightful plants, blooming very early in the year, and in great profusion.

Some are single, others double. There are blue, red, and white varieties. They are easy enough to grow, but they are not suitable for sunny rockeries, as they love coolness and shade.

- (1) *Iberis (Candytufts)*.—Indispensable plants, in spite of the fact that they possess no range of colours, the flowers being white. They are dwarf, spread rapidly, and bloom in great profusion. The best species are *corifolia*, *gibraltarica*, and *sempervirens*, one or more of which can be obtained from seedsmen, and sown early in June.

- (1) *Iris*.—The large and magnificent *Iris* genus has been dealt with somewhat fully in connection with herbaceous plants, but attention must be called to the fact that several species are admirable plants for the rockery, notably *iberica*, lilac and white; *pumila*, lilac and white; *reticulata*, violet and yellow; and *sisyrinchium*, lilac and yellow. These can be obtained from bulb-merchants in autumn.

*Leontopodium alpinum*.—This is the Edelweiss, over which youthful misses once grew sentimental, in the days before they had taken to golf and hockey. It has silvery foliage and flowers. It is easy to grow, spreads fairly freely, and as it is decidedly distinct in appearance it may be included.

*Linum (Flax)*.—This genus contains several beautiful plants, of which *alpinum*, blue, is one of the most useful for the rockery.

- (1) *Myosotis (Forget-me-not)*.—Delightful old favourites, which have been referred to under Herbaceous Flowers.
- (1) *Narcissi*.—Some of the small *Narcissi* are exquisite little rockery flowers, notably the Cyclamen-flowered (*cyclamineus*), the Angel's Tears (*triandrus*) and its white variety, and the charm-

ing trumpet Daffodil called *Johnstoni* Queen of Spain. All of these can be purchased quite cheaply from bulb-dealers in autumn, and will be very cheerful in spring.

*Omphalodes verna*.—This is a pretty, Forget-me-not-like plant, with bright blue flowers, propagated by division.

*Orobus vernus*.—Another useful little flower, propagated by division.

*Oxalis floribunda*.—A species of *Oxalis* is often sold as Shamrock, but the present is a large form, and would hardly pass muster, apart from the colour of its flowers, which is rose. It is a free-blooming plant, propagated by seed or division.

*Phloxes*.—One of the most valuable genera, because the plants grow freely, bear abundance of brilliant flowers, and are easily propagated by seed or division. What is called the "subulata" section is the most useful. The type plant is white, but its varieties *frondosa* and *Vivid* are rose, and *Newry Seedling* is lilac. They are all worth growing. *Froncosa* is one of the cheapest and most popular. Another charming *Phlox* is *divaricata*, which has lilac flowers, but it is taller than the *subulata* group. *Ovata*, red, and *reptans*, violet, are also valuable.

- (1) *Primulas (Primroses)*.—The coloured Primroses and Polyantheses, to which we referred under Herbaceous Flowers, may be used on rockeries, and so may several distinct species. *Rosea*, rose-coloured, is a brilliant gem, but it will not thrive in a hot, dry place; it must have a moist, cool spot. *Marginata*, violet; and *scotica*, purple, with yellow eye; are two charming species. Seeds of several of the *Primulas* are procurable, and may be sown in fine, moist soil, preferably



in a box in a frame or greenhouse, but failing that out of doors in early summer. Or they may be propagated by division.

- (1) *Saxifragas*.—The "Rockfoils" are a large and very important genus of rockery plants—indeed, many would consider them the most important of all. They vary considerably in height and habit, some being quite moss-like, and others having tall flower stems. *Oppositifolia major*, purple, may be taken as an example of the former; and *cordifolia pyramidalis*, red, of the latter. There are many spring-

flowering *Saxifragas* besides these, and three of the best of them are *aizoon*, cream; *granulata*, white; and *Wallacei*, white. The latter is a charming little rock gem, bearing its pretty flowers in great profusion. The *Saxifragas* are propagated by division in autumn.

*Triteleia uniflora*.—A quaint lilac flower, procurable from bulb-merchants in autumn.

*Veronica chamaedrys*.—This member of a greatly varying genus, which includes many large shrubs, is suitable for the rockery. It has blue flowers.

### SUMMER-FLOWERING PLANTS

Several of the genera that we have already considered give us summer-flowering species, and in addition there are many others.

- (1) *Androsaces*.—These are extremely popular with lovers of rock plants, on account of their brilliant colours and charming flowers. They are particularly dainty and pleasing, both in growth and bloom, and must be regarded as among the choicest of our rockery gems. Perhaps *carnea*, rose-coloured, is the best known, but *lanuginosa* and *villosa*, which are of much the same colour, run it closely. The *Androsaces* are worthy of a little special attention, and should be given selected positions and good soil. They can be increased by division in autumn or winter, and also by seeds sown in spring.

*Arenaria (Sandwort)*.—This white-flowered plant is not one of the highest class, but it is useful, because it will thrive in light, dry soil, which does not suit many of the choicer Alpines. Propagated by division.

- (1) *Armeria cephalotes*.—Most people know this beautiful, grassy-leaved, bright-flowered edging plant. There are few prettier, whatever their cost, and it is as well worthy of being introduced to the rockery as if it had never graced a cottager's flower border. Propagated by division.

*Aster (Michaelmas Daisy)*.—There is one species of this splendid genus which is suitable for the rockery, and that is the purple-flowered *alpinus*; the majority are too large. It is a very pretty Daisy, and may be increased by division in spring.

- (1) *Campanulas (Harebells)*.—This is another of the great rockery genera, and the flower gardener will find it almost as valuable as the Pinks, Phloxes, *Androsaces*, and *Saxifragas*, in spite of (or perhaps because of) the fact that the species are mostly blue in colour. One or two, such as *carpathica* and





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SWEET PEAS  
By Beatrice Parsons





its white variety, are sold by almost every seedsman, and can be raised in quantity at a very low cost. Others, such as *garganica*, *pulla*, and *Raineri*, all of which are of some shade of blue, can be propagated by seeds or division in spring. They are free-flowering plants of charming habit, and look well among stones.

*Convolvulus*.—The species *mauritanicus*, blue with white centre, is a pretty plant, and can be raised from seed in spring or early summer.

*Coronilla varia*.—This charming rosy trailer is worth including in a fairly large rockery, although not of the first importance.

*Cyclamen*.—The species *europaeum*, mentioned in the spring section, may bloom in summer.

*Cypripediums* (*Ladies' Slippers*).—These lovely Orchids are well adapted for cool, moist, shady positions at the base of rockeries, but they will not thrive in hot, dry spots. There are two well-known species, namely, *calceolus*, red and yellow; and *spectabile*, rose and white. The latter is a truly beautiful plant. Both thrive in moist peat. Propagated by division.

(1) *Dianthus*.—The Alpine Pinks are not limited to spring-flowering species, fortunately. Several of the most beautiful of them are summer bloomers, and among these may be mentioned *deltoides* (the Maiden Pink), *neglectus*, and *superbus*, all with rose-coloured flowers. They are very brilliant. Seed of most of the *Dianthus*es can be obtained from seedsmen who specialise in hardy flowers, and may be sown in spring or early summer.

*Geraniums*.—One or two of the hardy *Geraniums*, or Crane's-bills, can be

grown on the rockery if capacious pockets have to be filled, but they should be kept under surveillance or they will overrun smaller, weaker, and perhaps more valued neighbours. *Lancastriense*, rose, is one of the best; it blooms with great profusion, and is bright and vigorous. Propagation may be effected by division.

(1) *Helianthemums* (*Sun Roses*).—These are real friends to the rock gardener who cannot afford choice and expensive plants, for they are very cheap, spread freely, and are brilliant in colour. They form very bright and glowing patches when in full bloom. Propagation is by seed or division in spring.

*Linaria alpina* (*Alpine Toadflax*).—A pretty plant, with violet and yellow flowers. Propagated by division.

(1) *Lithospermum prostratum*.—One of the most valuable plants, on account of its profuse blooming and deep blue flowers. Propagated by division.

(1) *Poppies*.—The Iceland Poppies (*Papaver nudicaule* and its varieties), referred to under Herbaceous Plants, may be pressed into service for the rockery. They are bright and free-flowering.

(1) *Primulas*.—Several of the hardy *Primulas*, notably *farinosa*, with lilac flowers, and *viscosa*, purple with white centre, bloom in summer, and are charming for the rockery. Propagated by seeds or division in spring.

(1) *Saxifragas*.—Several of the best species, among which *hypnoides* and *longifolia*, both with white flowers, are prominent, are summer bloomers. Propagated by division.

(1) *Sedums* (*Stonecrops*).—These low-growing, dense, free-blooming plants are great favourites with rock gardeners, and justly so, for they are both



attractive and inexpensive. Acre, yellow, glaucum, pink, and lydium, pink, are all well worth including. Propagation is by seed or division.

- (1) *Sempervivums* (*Houseleeks*).—Useful low evergreens, equally attractive for their leaves and flowers. They are very distinct and interesting plants. There is a large number of species, and a collection may be formed by those who develop an interest in them after starting with one or two of the best, such as arachnoideum and

tectorum, both with red flowers. Propagation is by division.

- (1) *Silene* (*Catchfly*).—Charming little plants, which grow almost anywhere, flower freely, and have very bright colours. Maritima, white, and Schafta, rose, are special favourites. Propagation is by seed or division in spring.

*Thyme*.—The woolly Thyme (*Thymus lanuginosus*) is worth mentioning.

*Veronicas*.—The two blue species, *teucrium* and *rupestris*, should be selected. They bloom very freely.

### AUTUMN AND WINTER FLOWERS

Few Alpines are autumn or winter bloomers, and to get flowers at those seasons we shall have to turn to bulbous and allied plants.

- (1) *Colchicum* (*Meadow Saffron*).—That cheerful, Crocus-like plant, *Colchicum autumnale*, should be grown in quantity, for it costs little, and makes a very bright break of bloom in the autumn. The purple flowers are borne before the leaves. Bulb-merchants supply it.

- (1) *Crocuses*.—Several of the most beautiful species of this popular flower bloom in the autumn, and the following, which the larger bulb-merchants will supply, might be procured: *iridiflorus*, blue; *longiflorus*, lilac; *speciosus*, purple; and *zonatus*, lilac-rose. They ought to be planted in July or August.

- (1) *Cyclamens*.—*Coum* and *europaeum*, which have been mentioned in a previous section, will probably give flowers in autumn and winter.

- (1) *Irises*.—This large and valuable genus, which has been specially dealt with under Herbaceous Plants, includes winter-flowering species, and fortunately they are among the most beautiful, notably *Bakeriana*, violet and white; *histrio*, lilac; *persica* Heldreichi, lavender and yellow; *reticulata*, violet and yellow; and *Rosenbachiana*, purple and yellow. Large bulb-dealers supply them.

- (1) *Snowdrops*.—These graceful little flowers love cool places, but comfortable homes can be found for them on the rockery. *Galanthus Elewesii* is one of the best. All the finest Snowdrops can be bought from bulb-dealers, most of them very cheaply.

*Sternbergia lutea*.—A charming dwarf plant, with lemon-coloured flowers, which bulb-dealers supply.

## GREENHOUSE, CONSERVATORY, AND HOTHOUSE FLOWERS

LOVERS of flowers who have learned how much their favourites add to the charm of a home, when cut and arranged by skilful fingers in bowls and dainty vases, feel a great blank when winter comes and cuts off the supply of bright and fragrant blossoms. The rooms seem empty and bare, the furniture does not show up so well as it used to do, and the dinner-table looks dull in spite of snowy napery. What can be done? Buy? Yes, if near suitable shops or markets. Flowers are cheap enough now, in all conscience, and the market men take care to maintain a beautiful and varied supply. But those who live in the country find cut flowers very difficult to procure, although coals and bacon may be abundant enough. Besides, the bought flower is never quite the same as the home-grown one. An independent observer might be cruel enough to say that it differed inasmuch as it was better, but that suggestion we put out of court at once. It is not better—it is not half so good—to us, and that is the consideration which really counts.

It is out of this craving for home-grown winter flowers that a desire for glass-houses grows up. In the midst of our gloom and sorrow we suddenly see a ray of light. Winter and spring flowers? Of course. We can have them in abundance, and of our own growing. It is merely a question of spending a few pounds with a horticultural builder, and a few shillings with a purveyor of flower-pots. We ponder this idea, and it grows on us. The more we think of it the better we like it. We see a fair vision of floral charm when we make up a cheerful fire, draw the curtains,



and sit down to the evening meal. Pretty, graceful blossoms nod cheerfully at us across the table. Delicate scents please and soothe our senses. And no longer are our drawing-room vases empty, or decorated with nothing better than a few grasses and berries. They are full of exquisite, perfumed flowers.

Presently another consideration comes. Are there not many plants which we love that we have had to do without, because they are not hardy—Cinerarias, for example, and Cyclamens, and scented Freesias, and Orchids, and Gloxinias, and florists' Fuchsias, and Musk, and Gardenia, and Stephanotis, and Eucharis? These and many other beautiful plants we have foregone, because they do not thrive out of doors. Given glass, we can grow them all.

Perhaps there is a conservatory attached to the house—one of those awkward, lofty, stageless, draughty, damp places which are so tempting to the inexperienced gardener, but which prove to be so unsatisfactory as practical plant-houses. The reader knows that conservatory. If he has not one attached to his own house, he has seen one in association with a house that he visits. There are many things that it does. It sometimes plays a very useful part as an extra room in summer, and a general store in winter; but it is often a general muddle. There is one thing which it never does, and that is to grow decent plants. It cannot do so because it is not built that way. Suppose, however, that the owner takes a new view of it? Then he does not attempt to raise plants in a house which is totally unsuited for the purpose; but he puts up another house to produce the material in, and when it is in perfection he displays it in tasteful ways in his hitherto unsatisfactory house. As a show-house the conservatory proves to be a great success, and it is particularly pleasing and delightful in late winter and early spring—a period during which, in its old days, it was a hopeless and melancholy jumble.

In almost every household there is a member not quite so vigorous as the rest. Perhaps it is a lame or delicate girl, who is

not active enough to chase a hockey ball up and down a field, and give and receive resounding ankle thumps. Perhaps it is an elderly valetudinarian of either sex, who finds digging, mowing, and other phases of outdoor gardening too hard work. This member will find most of the work of a glass-house—sowing seeds, striking cuttings, potting and watering—well within the compass of his or her powers. Pleasure and benefit will be derived from these light and interesting occupations. They will be found to constitute both a healthful occupation and a delightful hobby.

All these points may be honestly adduced in favour of glass-houses, and another may be added, of which those familiar with the vagaries of our climate will readily admit the force—they permit of gardening (using the word in its broad sense) when the weather is unfavourable for outdoor work.

To sum up, there are overwhelming advantages in the possession of what the professional gardener speaks of collectively as “glass,” and as (to quote once more Cowper’s oft-quoted words)—

“Who loves a garden loves a greenhouse too,”

we may consider that our present case is proved, and set about getting estimates without a moment’s delay.

We will not, however, make haste too quickly. We will be prudent, and consider the matter in all its bearings. First of all, we will make sure of how much we can afford to spend. In this connection we will not overlook the fact that the mere price of a house does not cover the whole of the capital expenditure. There is the heating to allow for, and that may be expected to add a third to the cost of the structure—more or less according as the house is to be cool, intermediate, or hot. Is it absolutely necessary, one may ask, that a glass-house should be heated? No, it is not indispensable, but it is a great advantage, especially if winter bloom is wanted. We are well aware of the importance of the heating question, inasmuch as artificial heat involves a continuous expendi-



ture for fuel, and thus the matter cannot be settled on the mere basis of so much capital expenditure, any more than the cost of a motor-car can be calculated exclusively on the amount of purchase money. But the fact remains that without the provision for heating the special advantages of glass are greatly reduced.

A second matter that shall have our consideration is whether we will be satisfied with a house or houses for plants alone, or whether, when we are building, we will establish a fruit-house as well. It is important to settle this point at the outset, because two houses can be heated from the same boiler as well as one, provided the latter is of sufficient power. Time available for managing the houses, and suitability of site, are other points demanding consideration, and although they are secondary ones, they should not be overlooked.

*Cost of Glass-houses.*—The cost of building and heating glass-houses, and the choice of site, may well receive a little special consideration. When we have disposed of them we can proceed to the selection and cultivation of the best plants with a clear conscience. While the cost of glass depends to some extent upon its area, it does not turn upon that alone. There are degrees of solidity in the framework of horticultural buildings, just as there are in vehicles. There are differences in design, degrees of detail, greater or less ornament, elaboration, "finish." There are different qualities of glass, different systems of ventilation, different methods of glazing. The intending purchaser may find that he can buy a greenhouse ten feet long by eight feet wide for £5, and be astonished to find, when he goes to a firm that deals principally in larger houses, that instead of asking £10 for a house twenty feet by sixteen they ask £20 or more. In the matter of glass-houses in private gardens it is not the rule that the proportionate cost decreases with greater size; it generally increases.

The explanation of the cheapness of small greenhouses is that, as they are in great demand, the timber for them can be cut up

into certain lengths by machinery and the houses put together with so many screws, by men who do nothing else, in a given time. The amount of skilled manual labour put into them is very small. It is on all fours with the making of cheap bicycles and cheap books, for which special machinery is devised. It is certainly the fact that greenhouses can be bought at a cost of about ten shillings per foot run, and further, that these houses are quite capable of sheltering plants; but the purchaser does not get either a substantial or an elaborately finished article. It is severely plain and practical. It is a glass-house corresponding with the long streets of small, five-roomed terrace houses which spring up in all our large industrial towns, with the exception of those in which the tenement or flat system is in vogue. It is scarcely necessary to say that the home builder cannot build cheaper than he can buy while such rates as rule now are in force. He may be able to build better if he is a skilled mechanic, but that is all. Unless he has considerable mechanical knowledge he will be well advised to leave home building alone, for it will probably cost a great deal more than buying a finished house, and be no better.

The machine-made cheap greenhouse is built in sections, which are sent out under numbers, so that they can be easily and quickly put together by any one who knows how to twist a screw-driver round. The frames are generally sent unglazed, to avoid risk of injury in transit, and the requisite amount of glass, cut to fit, is forwarded separately. It is called a "tenant-right" structure, but it loses that character if it is nailed to a wall, or attached to mortared brickwork. If attached to a wall (when such attachment is necessary) by screws, and mounted on unmortared bricks, it is removable at will, but not otherwise.

There must not be a great deal of brickwork employed, or the ten shillings per foot rate will be speedily exceeded, and there need not be. One layer of loose bricks, resting on a firm, level



base, will be enough. The wall plates will form a part of the ends and sides, which the dealer sends in sections. Practically the whole of the house will be of wood and glass. It will probably be provided with two top ventilators, if a span-roof,—one on each side.

It is not desirable to buy a house smaller than ten feet by eight. A smaller structure becomes too much of a box. A width of eight feet in a span-roof house permits of two side stages each three feet wide. This is making the most of the space available, and gives quite a respectable area. But a somewhat larger house is desirable, because it permits of a division into two compartments, one of which (the side near the boiler) can have more piping than the other, and so serve as a warm house, while its twin is kept as a cool one.

In view of the fact that things are being cut very fine to get within the ten shillings per foot limit, it may be asked what a really substantial, well-built house, with some pretensions to style about it, would cost per foot run, including the heating. The reply is, anything from £2 to £4; but the former rate would insure a very good house. A lean-to—that is, a house supported by a wall—might be expected to cost a little less than a span-roof, but not, of course, if a wall has to be built to support it.

In view of the great difference in the cost of plant-houses, it behoves the purchaser to get estimates from two or three different firms, and, having compared the amounts, to endeavour to compare the classes of work done by the firms also.

*Fitting Houses.*—It may be taken as an axiom that a very lofty house is not a good one in which to grow plants. Such a house would be right enough if a high stage, built in tiers to correspond with the pitch of the roof, were constructed to fit it. But high, tier stages in lofty houses are not convenient for working, and are falling out of use. Flat stages are much more manageable. They have the disadvantage, in a house with a very sharp pitch, that the plants



SWEET PEAS  
By E. Fortescue Brickdale



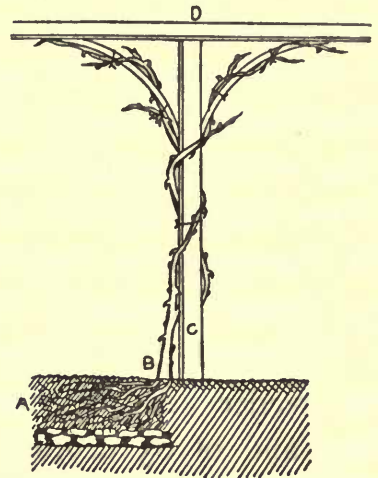
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on the front of the stage are a long way from the glass; but it is not in the least necessary to build a sharp-pitched house, and it is rarely done nowadays. A roof with a gentle slope fits in well with a flat stage. The varying heights of the different plants grown will insure informality; if not, a few can be raised here and there on small blocks, or on empty, inverted flower-pots.

A glass-house should always be fitted with shelves. There should be two, one on each side of the central ridge board, and they should be as broad as the pitch of the roof will permit. The great value of these adjuncts will be manifest when plants are being raised. Seedlings and rooted cuttings—in fact, all plants in their early stages—are better on a shelf close to the glass than on a stage several feet away from it, because they escape becoming “drawn”—a gardener’s phrase, descriptive of the elongation, accompanied by attenuation, which ensues when a plant a long way from the external light endeavours to stretch up to it. This “drawing” of plants is responsible for numerous failures. It is invariably accompanied by thin, weak stems and small, almost substanceless leaves, the natural succession of which is poor flowering.

The question may arise as to whether a portion of the sides, as well as the roof, should be of glass; or whether woodwork should come quite up to the eaves. The former is preferable in the case of fairly large houses, but in those of the smallest size—say, those not exceeding four feet to the eaves—side glass need not be considered. Where side sashes are used it is wise to have one of them hinged to serve as an extra ventilator: it will be very useful in hot summer weather.



TRAINING PLANTS ON PILLARS

A, border; B, climbing plants; C, pillar of greenhouse; D, cross-beam supporting rafters of greenhouse.



*Temperatures.*—Those to whom a glass-house is a glass-house, and nothing else, are sometimes bewildered when they hear different names applied to glass structures. To many every kind of glass-house is a greenhouse; but to horticulturists a glass-house is only a greenhouse when a certain degree of temperature is maintained in it. With further degrees of heat it becomes an “intermediate” house, or a “stove.” The latter term is particularly confusing. Most people think of a heating apparatus when the word “stove” is used, but not so the gardener; his “stove” is a hothouse.

What degree of heat constitutes a “greenhouse,” what an “intermediate” house, and what a “stove”? A glass-house (other than a conservatory) would be called a greenhouse if unheated, or if not heated beyond an average of 45 degrees in winter; it would be considered an intermediate house if the temperature averaged 55 degrees in winter, and a stove if it averaged 65 degrees. It is to be hoped that the use of the word “average” will not mislead the reader. A temperature of 45 degrees at one period of the day, and of 85 degrees at another, would give an average of 65 degrees, but it would subject the plants to alternatives of temperature which would be likely to prove detrimental to them; and it may therefore be well to state that the minimum winter temperature for the three types of house may be 40 degrees, 50 degrees, and 60 degrees respectively. It is only the winter temperatures that can be used to afford a comparison, because in summer the temperature of every glass-house goes up to a high figure; in fact, the difficulty is to keep it down, and shading, as well as ventilating, has to be resorted to, even in a house that has no artificial heat whatever.

The conservatory does not change its name, as ordinary glass-houses do, with the degree of heat maintained in it; it is always a conservatory, and nothing but a conservatory. It is obvious, however, that if it is to do full service in winter it must be

heated. To transfer plants from a heated house to an unheated conservatory in severe winter weather would be to ruin them.

*Frames and Pits.*—We see that a greenhouse, or a glass-house of some description, is a valuable—indeed almost an indispensable—adjunct, to a conservatory; let us now add that a frame is an equally useful supplement to a greenhouse. A frame is quite a low structure. The back is only raised above the front sufficiently to carry off the water. It is consequently a structure in which the plants are close to the glass, where they cannot become “drawn.” It can be moved about, as occasion requires, from one part of the garden to another. It can be raised on to a hotbed of manure, and so be made to serve as a propagator. One of the greatest conveniences of a frame is that, without the hotbed, it serves as a half-way house for tender plants which are to spend part of their time in the greenhouse and part in the garden. Chrysanthemums are one popular example, and Tomatoes another. The young plants undergo in the frame the process of what gardeners term “hardening-off.” If transferred direct from a warm house to the open garden (and the temptation to effect such a transference is very strong when the greenhouse is getting crowded and the weather is warm) failure sometimes ensues, because a sudden change of weather subjects them to a strain for which they are not prepared. The frame “tempers the wind to the shorn lamb.” A clever gardener will make great use of a frame. He will use it for raising plants late in winter, or for hardening them in spring; he will perhaps grow Cucumbers or Melons in it in summer; and he may use it for Violets in autumn and winter. The cost of a frame is not great; a very nice one can be bought for twenty-five shillings; and it is only fair to consider that in connection with the cost of the house. If there is a sum of £20 available for glass, it will be better to spend £15 on a house and £5 on frames than the whole of the money on a house without frames.

A pit is a kind of half-way stage between a frame and a green-



house. You can call it a glorified frame or an abbreviated greenhouse, whichever way you like to look at it. It is generally constructed partly of bricks, on a few courses of which a low frame is fixed, with sliding lights. Such a structure is often established under a greenhouse, running the entire length of it. Its uses correspond to those of a frame. It generally has the advantage of being a little more roomy, but the disadvantage of not being movable. Sometimes, however, a pit becomes much more than a large fixed frame; it becomes neither more nor less than a small sunk stove. Hothouses below the ground level are generally spoken of as "pits" in gardens. They are serviceable for special purposes, such as the cultivation of Cucumbers and ferns, but not for all-round use in growing flowering plants; and amateurs need not trouble about this class of structure.

*Glazing.*—It is wise to use 21-ounce in preference to 16-ounce glass for all kinds of glass structures, as the greater cost is not excessive. Top putty should be avoided. The squares should be bedded in putty, and then fastened in with small sprigs.

*Heating.*—When we come to consider plants for glass structures of different classes we see that it is possible to find some pretty flowers that will thrive without artificial heat, but only where expense is a great consideration, or time for attending to a heating apparatus very limited, should a house be left unheated. Want of heat limits the owner severely. He may be without flowers for several consecutive weeks if the winter should prove to be a severe one, and he cannot command a supply at any particular period. Moreover, there are many beautiful plants which he cannot attempt to grow at all. Heat the house, therefore, if it can possibly be done.

Large houses are heated in almost every case by a hot-water apparatus, consisting of a boiler and pipes. Boilers differ considerably, but pipes very little. The boiler may be an upright or a horizontal one; it may be plain or tubular. The pipes will be of cast iron, and will be four inches in diameter. An upright boiler let

into the wall or woodwork of the house, without a stoke-hole, may be chosen for any structure that does not require more than seventy-five feet run of piping. Above that figure it is desirable to construct a stoke-hole, and use a horizontal boiler. There are almost as many different kinds of boiler as there are of motor-car. Any one who finds a difficulty in choosing from among the various special boilers advertised will be well advised to select a waterway-end saddle boiler. It is a "stock" article with almost every firm of hot-water engineers, and a good one, being powerful and easy to manage. It is quite impossible to say what is absolutely the best of the numerous boilers, suitable for small houses, that are advertised. In the case of all of them success turns principally on skill and care in stoking, and any person with a modicum of common sense can learn to stoke.

The size of the boiler will naturally depend on the amount of piping, and the latter upon the size and temperature of the house. Gardeners have a simple working rule for calculating the amount of four-inch piping necessary for the different classes of house, and we will quote it for the benefit of inexperienced persons. It is to divide the cubic capacity of the house by 30 for a greenhouse, 25 for an intermediate house, and 20 for a stove, taking the result in each case as the number of feet of piping required. The cubic capacity can, of course, be ascertained by multiplying the length of the house by the breadth, and the product by the height. In the case of a span roof, it is hardly fair to take the distance from the floor to the ridge as the actual height; it is fairer to take the height to the eaves, and then add to it half the height from the eaves to the ridge.

The setting of an upright boiler is not so serious a matter that it cannot be undertaken by any handy amateur, but it is safer to have a man down from the maker, or if the distance is too great for that, to refer to a local builder. In the horizontal boilers that course is essential. In any case it should be remem-



bered that the pipes must rise from the boiler to the extent of about an inch in every eight or ten feet, in order to facilitate the flow of the water along the return pipe back to the boiler after it has been round the house and parted with most of its heat. The pipes are connected in various ways, but perhaps most commonly by means of india-rubber rings, which are fixed over the spigot ends, and then forced into the sockets.

Coke broken small, and mixed with cinders from the house fires, is the best fuel for small, upright boilers. It is useless to use large coke or coal, for either will "cake," and the fire go out. Some little study is needed to stoke successfully, particularly in making up the fires the last thing at night, when they have to go several hours without attention. Coke and anthracite coal are both used extensively for large boilers.

*Soil.*—Most glass-house plants will thrive in a mixture of loam, leaf-mould, and sand; and in order to avoid repetition later on, one or two alternative composts may be given now. When we come to deal with the individual plants we can refer to these mixtures, or indicate a special soil if required. The following may be taken as suitable for any plant dealt with unless a special compost is indicated:—

## No. 1.

Two-thirds of fibrous loam.  
 One-sixth of leaf-mould.  
 One-sixth of decayed manure.  
 Mix the above well, incorporating at the same time a quantity of sand equal to about one-eighth of the whole, or half a peck per bushel.

## No. 2.

Three parts of fibrous loam.  
 One part of leaf-mould.  
 Add sand as before, and likewise one thirty-second part, or a quart per bushel, of superphosphate. The latter takes the place of the decayed manure.

A special word may be devoted to the various ingredients of these two composts. Fibrous loam is far the most important of any constituent of soils for the majority of greenhouse and room plants, and the gardener who is bent upon succeeding will not allow himself to be put off it lightly. It really cannot be properly

replaced by anything else. Some amateurs may consider that if the soil in their garden is capable of growing good vegetables and fruit it ought to be good enough for greenhouse flowers, and consequently may feel free to draw upon it when potting. As to this, two things may be said: first, garden mould rarely contains enough fibre for sustaining pot plants, which, owing to their circumscribed surroundings, need food in a concentrated state; secondly, the garden soil is needed where it is. Fibrous loam can always be bought from a nurseryman, or dealer in garden "sundries," and the price may be about a shilling a bushel. Where only a few plants are being grown this is well enough, but where a large number are being dealt with it is more economical to try and procure a load of turves from a builder, or from some other person who is cutting up grass land. The turves should be placed in a heap, reversed, so as to bring the grass side underneath, and left for nine or ten months, in order that the grass may die. The heap may then be sliced down with a spade as the soil is required for potting. The decayed fibres of turf are highly nourishing to plants.

With respect to leaf-mould, this merely consists of rotted leaves. When the reader treads the soft vegetable mould of a forest he compresses beneath his feet the leaves of former years, which have fallen and decayed. If he collects fallen leaves in autumn, and stores them for a few months in a well-trodden heap in a pit, or some out-of-the-way corner of the garden, they will decay, and give him a supply of leaf-mould. He can, of course, buy it from nurserymen and dealers, in the same way as fibrous loam, if necessary.

As to the decayed manures, the ordinary "rotted dung" of the kitchen gardener is not the kind of substance suitable; what is wanted is the dry, crumbly stuff that comes from a hotbed which has done service for Cucumbers, or Violets, or some other crop, and which is no more disagreeable to use than decayed leaf-mould.



No wet, greasy, offensive stuff, which will not fall into dry flakes, is suitable for mixing in potting composts ; whatever is used should pass readily through a coarse-meshed sieve under a little pressure from the palms of the hands, and leave the latter practically unstained.

Superphosphate makes a fair substitute for decayed manure. What is known to dealers as "mineral superphosphate" is a dark grey powder ; although it has an odour of its own it is not at all disagreeable. It is quite inexpensive. It may be supplemented by liquid manure, used in the way to be described presently.

Potting sand should be regarded as quite distinct from silver or sowing sand. The latter is too fine in texture to be suitable for composts ; moreover, it is relatively dear. Sand for potting should be in large, coarse particles. What is termed "washed river sand" is suitable, and it can be bought from local builders as well as from florists. Sand helps to keep a compost open and aerated. It also probably encourages root action ; certainly it is found to be an excellent component of mixtures for raising seedlings and striking cuttings. In these propagating composts the quantities both of leaf-mould and sand may be increased, and the decayed manure, or superphosphate as the case may be, omitted. The proportion of loam should be considerably reduced.

*Pots and Potting.*—The most useful sizes of pots to buy are those with the following inside diameter at the top : three-inch, five-inch, eight-inch. The first size will come in for the first potting whether the plants are raised from seeds or cuttings ; the second for the next potting, also for the first and only potting of bulbs ; the third for the repotting of such plants as need a shift from the five-inch. The various pots are known in the trade as sixties, forty-eights, and twenty-fours, from the number of each in a "cast." Those who must manage with two sizes had better drop out the five-inch and eight-inch, and substitute a six-inch ("thirty-two"), which is a very useful all-round pot. New pots ought to be soaked in a tub of water for a few hours, and then stood to

dry, before use. The hole in the bottom should be covered with a few pieces of broken pot, arranged so as to overlap each other, and these again with a little moss or leaf-mould, in order to prevent the soil from clogging it, and preventing the egress of water.

Whether for propagating, or for potting rooted plants, the soil should always be pressed firmly into the pots. It need not be made so hard (except in the final potting of Chrysanthemums) that a finger cannot be forced into it, but it should certainly not be left in a loose, spongy state. Generally speaking, a plant requires a shift to a larger pot when its roots begin to coil round the interior, and to protrude at the bottom. In case of doubt no possible harm can be done by shaking a plant out of its pot for examination, provided the soil is moist; if dry, it might fall away and leave the roots bare. The way to perform this little operation is to spread the fingers of one hand over the surface of the soil, letting the stem of the plant pass between them, turn the plant upside down, and tap the rim of the pot steadily on some firm, fixed object until the pot has loosened, and then to lift it off with the other hand. If there is no larger pot available for a plant which has coiled its roots, two inches of the top soil, and some of the side mould, may be broken off, and fresh rammed in to take its place. This is called "top-dressing."

*Sowing Seeds and Striking Cuttings.*—The method of propagation of each particular plant to be dealt with in the notes which are to follow will be mentioned in the references to it, but to save the repetition of details a little attention may be devoted to them now. In raising those glass-house plants which are propagated by means of seed it will generally be found good practice to sow thinly in a pan (a wide, shallow form of pot) or a shallow box, making the soil very fine on the surface, and covering lightly. In the case of the smallest seeds, such as Begonias and Gloxinias, it is advisable not to attempt to cover them with soil at all, but to sprinkle them very lightly and thinly over a surface of moist silver sand, and then



spread on a half-inch thickness of fresh, clean moss. Whether covered with soil or not it is an excellent plan to place a square of glass over the receptacle, and cover this with newspaper. This will check evaporation, and lessen the necessity for frequent watering. If the soil should become absolutely dry, water must be given, and it may be poured through the moss by means of a rosed can. If moss is not used the soil had better be moistened by immersion, the receptacle being gently lowered into the water nearly up to the brim, and kept there until water shows at the surface, then withdrawn, and held over the tub until the superfluous water has ceased to run out. These methods of watering prevent the washing out of seeds and seedlings, which might easily happen if water was poured on the top. While moisture must be given when really necessary, restraint should be exercised so long as the soil is moist, because a sodden condition is bad. When the seedlings show, moss, glass, and paper should all be removed, as it is desirable that the plants shall be kept sturdy by exposure to light and air. It is from this stage that the greenhouse shelf will prove so valuable for them. There need be no fear of the seedlings damping off if this treatment is given. When they are about an inch high they may be gently raised on the point of a label, and "pricked off" three inches apart in other boxes. When they touch each other in these boxes they will be large enough to be put singly into small pots, and so fairly start on their career as established plants. Seedlings come quicker in bottom heat than without it, and consequently it is a good plan to enclose a section of the hot-water piping with slates; fill it with cocoa-nut fibre refuse kept moist, and so make a propagator of it.

In striking cuttings, the question of bottom heat in a propagator, and of a close, moist atmosphere, turn somewhat on the character of the cutting. If it is of a thin, wiry, woody nature, such conditions are favourable; but if it is thick, soft, and fleshy, they are not. The great majority of cuttings strike best when

the air is excluded from them, and when they have bottom heat. They are generally best when sturdy, short-jointed, and taken about three inches long, just below a joint. They should be pressed in firmly, and the soil squeezed close round the base.

*Ventilating.*—The ventilation of glass structures is of importance at all times, but never more so than when the plants are quite young. If they are kept sturdy, then they are almost certain to grow up strong and healthy. They should not only be kept as close to the glass as possible from the outset, but have free ventilation, as fresh air is of the greatest moment. It should be made a rule to open the ventilators quite early in the morning—in fact, one may be left an inch or two up all night in summer. If there is a cold wind blowing on one side of the house, ventilate from the other. In the case of frames, where young plants are perhaps being brought on, the lights should be open more or less all day, unless the weather is very cold and boisterous, and they should be removed altogether when it is mild and still.

*Watering and Feeding.*—We have already commented on the necessity for care in watering seedlings, and we may be almost as emphatic respecting established plants. True, one error may not be vital, but continued mistakes or neglect will be fatal sooner or later. The point that many amateurs cannot be brought to see is that plants do not require water as regularly as animals need food. These persons make the plant's water analogous with their own bread and butter, but the parallel does not hold; it is the soil in the pot rather than the water which represents the analogy. It may be admitted that moisture is essential, but a moment's thought will show that it is not likely to be in such demand in winter as summer, partly because the process of evaporation is much slower, and partly because the roots are less active in drawing upon the moisture and food store in the soil. Lady amateurs have a way of giving their plants water summer and winter as regularly as they give their cats milk, but this is wrong. Water should be



given when the pot rings hollow on being rapped, and never when it sounds dull, whether it be twice a day or twice a month.

Liquid manure will never be required by seedlings or cuttings, or by young plants which have not filled their pots with roots. It can only be used with benefit on plants that are established in their pots, and have pushed roots right through the soil. Even then it should never be given in strong doses. Where the proprietary powder manures are being used, they may either be sprinkled very thinly over the surface of the soil twice a week and watered in, or made into liquid manure by stirring an ounce in a gallon of water, and using twice a week.

*Insect Enemies.*—The best of plant cultivators are troubled by insect enemies, although perhaps less severely than the worst. Green-fly (aphides) is no respecter of plants. It will work more havoc on a weak specimen than on a strong one, but it will make a strong one gradually weaker, and may even kill it. It attacks almost all kinds of plants. It will fasten on Roses, Cinerarias, and Tulips with equal gusto. Have you a Maréchal Niel on the wall of your conservatory? Beware lest you find, when you cut a bunch of flowers, that the stems are covered with a dense mass of wriggling green insects, which cause you to throw down the cluster, on the point of raising it to your nose for a long, ecstatic sniff, in disgust. Green-fly moves to the attack swiftly. You may be sure one day that a particular plant is free, but you cannot be sure that it will not be overrun three days later. The insect increases at a tremendous rate, and unless checked in an early stage of its attack, speedily becomes master of the situation. And green-fly is not the only pest. Mealy-bug is another plant enemy, more offensive even than aphides. It clothes the stems and foliage with a filthy white mass, making them disagreeable to handle, as well as unhealthy. It does not spread so fast as green-fly, but it is just as dangerous, because it is much more difficult to destroy. It has a way of insidiously attacking roof plants,

which, owing to their position, are not so readily accessible as stage plants, and are less frequently examined. For instance, it may fasten on a *Stephanotis*—a plant for which it has a decided partiality—and make that fragrant favourite absolutely loathsome. When it gets established in a house it generally baffles all the efforts of the cultivator to get rid of it year after year, consequently his object should be to take care that it does not get a firm footing. Red-spider is a tiny mite which forms colonies on the under side of the leaves of many plants, and spins webs. It is almost invisible to the naked eye, but the effect of its operations are only too plain in the loss of substance and green in the leaves, and in the appearance of red or bronze blotches. Thrips is a small, quick-moving insect that may attack either the foliage or flowers of plants. Some plants, notably *Cinerarias* and *Marguerites*, are subject to the attacks of leaf-mining grubs, which hatch from eggs deposited by flies between the upper and lower skins of the leaf. Their presence may be known by the appearance of greyish lines in the leaves.

The foregoing are the most common and troublesome of the insects that attack indoor plants, and now for some remedies. In the first place, we must work on the golden rule of prevention as far as possible, because it saves time, money, and plants. Amateurs should not take up the position that when insects appear certain remedies must be applied; it is better to decide that, as insects are sure to come, preventive measures shall be adopted whether they are seen or not. In recent years the most common means of keeping insects down is by vaporising preparations of nicotine, which is the poisonous principle of tobacco. The substance, and a small appliance for vaporising and distributing it, are sold together in handy packets, varying in size according to the size of the house to be treated. The packets can be bought from all seedsmen and florists, and they are not expensive. One that is extremely well known is the "XL All." Another is West's. Beginning at the



middle of April, the cultivator might practise vaporisation once a month until the middle of October. He may appear to be working in the dark. He may not see any insects, and he cannot follow all the movements of the vapour; but he may depend upon it that there are insects lurking in some corners or crannies, and be equally sure that the vapour will search them out and destroy them.

Another great help in keeping down insects under glass is to provide plenty of atmospheric moisture, and to apply it vigorously. For example, if there are roof plants, souse them once a week with water applied forcibly through a syringe. The water will cleanse the plants on to which it is driven, and, falling in a heavy shower on those on the stages below, will cleanse and freshen them also. Mealy-bug, red-spider, and green-fly are all so seriously incommoded by these vigorous washings that they never get a chance to settle down. It is a dry atmosphere, and freedom from bustling, that gives them their chance.

Plants that are subject to the attacks of leaf-miners—indeed, plants that are attacked by any kind of insect—may be protected by being sprayed over every three weeks or so with a paraffin-oil and soft soap emulsion, which may be made by boiling a pint of soft soap in two pints of water, stirring in, after removal from the fire, half a pint of paraffin-oil, and diluting in five gallons of water. The mixture should be thoroughly worked up by filling a syringe from, and emptying it into, the vessel repeatedly. It is best sprayed lightly on the plants towards evening.

*Fungoid Enemies.*—There are several fungi which attack indoor plants, but mildew is much the most common. It coats the leaves with a grey powder, and they lose their substance and fall; the plant becoming thoroughly unhealthy, or even dying outright. These fungi, and particularly mildew, are commonly the result of faulty ventilation. They are almost certain to appear if a house is subject to cold draughts, as is the case sometimes when the ventilators are opened at the side on which the wind is blowing. But

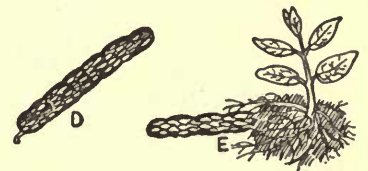
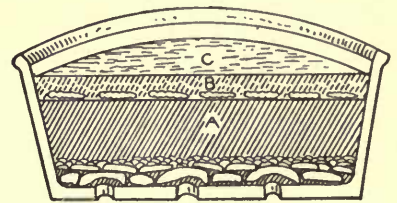
they are also liable to come when the air is stagnant, and what we should describe as "close" or "heavy." The cultivator must give due consideration to these points, and act accordingly. Sulphur in some form is the best remedy for mildew. It may be used in the form of the yellow powder known as flowers of sulphur, or through the chemical liver of sulphur, otherwise known as sulphide of potassium. The latter is very cheap, and may be applied conveniently in solution. Dissolve one ounce of the chemical and two ounces of soft soap in five gallons of water, and spray the mixture on in as fine a state as possible. It is best to carry the plants outside the house for the purpose, as the solution will stain paint. The fungoid disease of Chrysanthemums which is known as "rust" may be attacked by the same means. In the case of fungoid, as in that of insect, attacks, success in repelling the disease turns largely upon prompt action.

Let us now proceed to consider the most beautiful flowers for glass-houses. We shall find that there is no lack of material for all classes of structure. We will take them in alphabetical order.

*Acacias* are charming greenhouse plants, which bloom in late winter and in spring. They have pretty little balls of yellow blossom borne in great profusion, and are easily grown. *Armata*, *dealbata*, and *leprosa* are three good sorts.

*Achimenes*.—These plants might well be more extensively grown, for both leaves and flowers are attractive. They make splendid effects in baskets or pans, an ordinary compost being employed.

*Amaryllises (Hippeastrums)*.—These have been mentioned under



ACHIMENES

A, compost ; B, tubercles ; C, covering soil ;  
D, dormant tubercle ; E, tubercle growing  
in fit state to transplant.



Bulbs. They are plants of the most brilliant colouring, as the coloured plate shows, and their large, open flowers are of great substance. They bloom in winter and spring, earlier or later according as they are grown in a warm or cool house. Gardeners start them into growth early, and put them in an intermediate temperature in order to get them in flower in February, when



ARUM LILIES

A, A, side slips on large Arum Lily plant C ; B, dark lines showing where to divide the slips, or separate them from parent plant ; D, young plant potted ; E, new growths appearing on rested plant, condition for repotting.

they are the most beautiful occupants of the house ; but they are not really tender plants, and an amateur with an ordinary greenhouse would derive much pleasure from a small collection flowering in spring. Potting bulbs in the same kind of soil as that recommended for Hyacinths, he could start them naturally into growth as his house grew warmer, and have them in bloom in April or May. When they went out of flower he could gradually dry them off, rest them, and start them again the following year. They like abundance of water when they are growing. They may be increased by means of the offsets which form on vigorous plants ; these young growths may be taken off and potted.

*Arum Lilies* have already been considered (see Bulbous Section), and it need only be added that they are among the most graceful of pot plants. Blooming in winter and spring, they are very valuable. They will thrive in an unheated house, if a newspaper is twisted round them in severe weather, but will bloom later than in a heated structure.

*Azaleas* are among the most beautiful of greenhouse flowers. They are distinguished by great freedom of flowering, and brilliant colours. They are in the way of being hardy plants, and in mild



FIBROUS-ROOTED BEGONIA  
By A. Fairfax Muckley



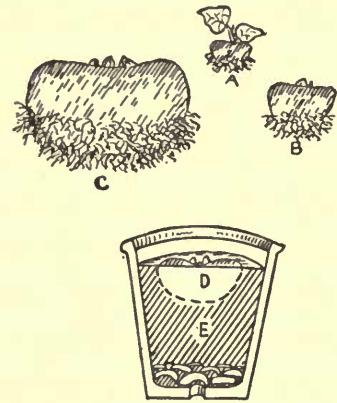


districts thrive out of doors; but they are not safe in the open air in exposed places. Even if they were, it is quite certain that they would be largely grown under glass. Their comparative hardiness will attract the attention of the owner of an unheated house, who will find them very useful. He can buy them fully set with flower buds if he likes, for Belgian florists export them to this country in immense quantities during the spring, and the prices are low. They are generally standards—that is, plants with a head of foliage and flowers surmounting a clear stem, so that they are suitable for mixing with bulbs in a greenhouse. They enjoy a peaty soil. If kept through the summer they can be stood on a bed of ashes in a suitable corner of the garden.

*Balsams* are old-fashioned flowers, which have not developed very much in modern times, the attention of florists having been concentrated on other things, notably Begonias and Carnations. But they are quite good enough, even as the old florists left them to us, to be grown, and it is no small thing in their favour, from the point of view of the amateur who has only an unheated house, that they are annuals, can be flowered from seed in a few weeks, and after blooming need not be preserved. The person who wants Balsams should look up a seed catalogue in spring, and he will probably find two or three strains of double Balsams offered, including Camellia-flowered, and this one will suit his purpose admirably. A packet is not likely to cost more than sixpence, and a number of plants can be raised from it by sowing an inch apart in fine, moist soil in a pot, pan, or box. Balsams are among the easiest of plants to grow, and if watered when required, and given plenty of air, they will grow up strong and sturdy. They will develop a thick, succulent stem, on which double flowers as large as crown pieces, and very brightly coloured, will stud themselves closely. Short side shoots will form on strong, healthy plants; and these, too, will be clothed in flowers.



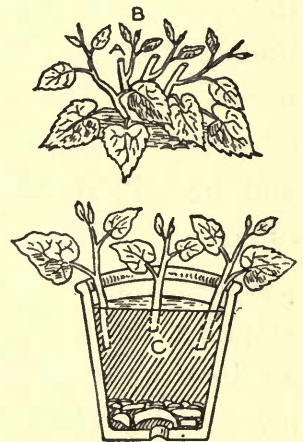
*Begonia*.—We considered Begonias under Bulbs, so far, at least, as the tuberous ones are concerned. But we must remember that Begonia beauty does not begin and end with that magnificent class. There is another great section called the fibrous rooted, because it does not form tubers, and it includes a large number of species and hybrids, not one whit inferior to the tuberous in beauty, glorious plants though the latter are. What Begonia, for example—what plant of any genus, if it comes to that—is more beautiful than that exquisite hybrid Begonia Gloire de Lorraine? The white form, Turnford Hall, is also a lovely plant. Other charming kinds are Gloire de Sceaux, Weltoniensis, and



TUBEROUS-ROOTED BEGONIAS

A, a small tuber commencing to grow, for boxes or pans; B, one larger for small pots; C, a strong tuber which will bloom freely; D, the tuber C potted in compost E.

*semperflorens rosea*. These fibrous-rooted Begonias have another great recommendation in addition to their beauty, they flower in winter and spring. Gloire de Lorraine may be had in bloom soon after Christmas, and be kept fresh and cheerful—a light, fairy mass of softest rose—for several weeks. It is frequently grown in a wire basket, and suspended from the roof; and perhaps it is under such conditions that it is seen to the greatest advantage. After it has bloomed it is gradually dried off, and cut back to short stumps. After a short rest it is given a little heat, the stumps are syringed, and fresh growth starts. When the shoots have pushed two or three inches long they are taken off as cuttings, struck, and made into a fresh supply of plants. Another method of propagation is to take a large,



BEGONIA GLOIRE DE LORRAINE

A, old stems cut back; B, young shoots; C, young shoots inserted as cuttings.

matured leaf, nick the mid-rib in several places, and lay it on the surface of a pot of soil; or (and this has been found to answer well) to retain the leaf-stalk when the leaf is picked off the plant, and insert it in the soil up to the base of the leaf; making what might be called a leaf cutting. These are all interesting methods of increasing a plant which, when it first came out, puzzled the propagators because it did not seed, and flowered so profusely that it was impossible to find shoots suitable for making cuttings.

The fibrous-rooted Begonias like the temperature of an intermediate house. They will thrive in the mixtures of soil previously recommended. Most of them are easily propagated by cuttings.

*Bougainvillea*.—The *Bougainvillea* is a very vigorous plant, which rambles freely, and produces a profusion of beautiful bracts, that are commonly spoken of as the flowers. The real blossoms are of no beauty, but the bracts are very gay, the colour being rosy lilac, deepening in some forms to brilliant rose. In warm countries the *Bougainvillea* will thrive out of doors, as in Algiers, where the splendid specimen shown in the coloured plate was growing, but in this country they are best planted out in the border of an intermediate house, and trained up the roof. A number of side growths will push from the main stems, and flower abundantly; after blooming they can be pruned in, and a fresh crop will come the following year. The plant does not require any special soil, and is easily propagated by cuttings. The variety *spectabilis superba* is about the best, but *glabra* is the more grown.

*Bouvardia*.—A great favourite, for not only does it produce its pretty blooms in abundance, but they are pleasantly perfumed. It flowers best in an intermediate house, but it may be grown in a frame throughout the summer. Ordinary potting soil suits it—indeed, it is quite an accommodating plant, giving very little trouble. It may be propagated by cuttings of the stems, but bits of root strike so freely that this method of increase is now generally



practised. Priory Beauty and Alfred Neuner are two charming varieties of Bouvardia.

*Cacti*.—See separate section.

*Caladium*.—One often sees in groups of hothouse plants at the exhibitions, or in the botanic gardens, bold plants with large, shield or heart-shaped leaves, very brilliantly coloured. These are Caladiums. It is for their foliage, and not for their flowers, that they are grown. Except in the case of one or two species, notably the pretty silvery leaved one called argyrites, they are not quite suitable for small structures, as they are vigorous growers; and in any case they should have the temperature of a stove-house. They are tuberous-rooted plants, like Gloxinias; and are dried off in autumn, stored for the winter, and re-started in spring. Large tubers, grown in the normal potting mixture, and given a moist, warm atmosphere, will make enormous leaves. Small tubers will form, and may be grown on by stages.

*Calceolaria*.—The Calceolaria of the flower garden is familiar to all supporters of the bedding system in the form of a small, yellow, pouch-shaped flower, growing on a low plant with roughish, soft green leaves. The Calceolaria of the florist has the same form of flower, but the size is immensely greater, and the colours are more varied. The former is called the shrubby Calceolaria, because it retains its stems throughout the year; the latter is known as the herbaceous Calceolaria, because it dies down at the end of the season, and springs again the following year. The shrubby Calceolaria is propagated by cuttings, the herbaceous by seeds. It is the rule to dispense with old plants of both sections after flowering, and to raise fresh every season. The cuttings of the shrubby are inserted in October, the seeds of the herbaceous are sown at mid-summer. The latter is far the more important section. In years gone by the yellow Calceolaria was much in demand for "ribbon borders," but fashion has changed, and it has lost its vogue. The herbaceous Calceolaria is too valuable a plant for early summer

blooming to be passed by. The young plants should be grown in a frame during summer, and brought into the greenhouse or conservatory in autumn, before sharp frosts set in.

*Camellia*.—We have in the *Camellia* one of the noblest of conservatory plants. Its charm lies partly in the large, glossy foliage, and partly in the symmetrical and beautiful flowers. Everybody admires this magnificent shrub, and the worst criticism that has ever been levelled against it is that the flowers have a somewhat stiff and artificial appearance. This is due to their perfect contour, great substance, and wax-like texture. The *Camellia* is almost hardy, and in mild counties like Cornwall it lives for many years in the open air. In most parts of the country it requires the protection of a greenhouse. It is not always satisfactory when grown in pots in a small house, because, although it grows healthily, it often casts its flower buds. This does not happen, as a rule, when it is planted out in a conservatory. The trouble is doubtless due to some error in watering, of which the grower may be unconscious. Certainly great attention to watering is needed, and while the plants must not be regularly watered at periods when the soil is moist (which would have the effect of rendering it sodden), it must never be allowed to remain absolutely dry. The normal mixture of soil will do, but it is an advantage to omit the leaf-mould and decayed manure and substitute peat, which may be used in equal proportions to the loam. Propagation may be effected by striking cuttings in summer, or by grafting.

One of the most beautiful *Camellias* is the double white (*alba plena*). The coloured plate shows a small plant of this growing behind an orange *Clivia* in the greenhouse at Kew. These two plants formed a charming picture in February and March 1908, and their effect was enhanced by a plant of the charming *Jasmine* (*Jasminum primulinum*) near. Other beautiful varieties of *Camellia* are: C. M. Hovey, crimson; Donckelaari, crimson and white,



semi-double; Lady Hume's Blush, flesh; and Reine des Beautés, rose.

*Campanula*.—Most of the Campanulas are purely flower garden plants, but the blue pyramidal (*C. pyramidalis*) and its white variety, alba, are beautiful plants for greenhouses, conservatories, and lofty, glass-covered porches or corridors. They are hardly suitable for the small, amateur's greenhouse, because they may grow from five to seven feet high. They are raised from seed sown in spring, grown in medium-sized pots until the following spring, and then transferred to large pots. They will flower in summer, and can be discarded after blooming in favour of young plants.

*Canna*.—The brilliant *Canna* was referred to under Herbaceous Plants, and its value for the flower garden was pointed out; but we must not forget how useful it is for greenhouses and conservatories also. The tubers are potted in the normal soil in spring, and if convenient may be put into a warm house until they are growing freely, and then transferred to the conservatory or greenhouse, but this is not essential; it is only advantageous in expediting the flowering. After blooming the plants may be gradually dried off, and the tubers stored for the winter. If increase is desired, the tubers may be divided when they start growing in spring. Cannas want an immense quantity of water when in full growth, especially if growing in comparatively small pots; liquid manure will also be of great benefit to them.

*Carnation*.—See separate section.

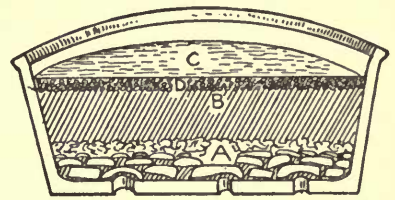
*Chrysanthemum*.—See separate section.

*Cineraria*.—The *Cineraria* has been one of the greatest ornaments of greenhouses for many years past, and its popularity only grows with time. Had there been any decline in the favour which they enjoyed when the beautiful florists' varieties reigned supreme, it would have been arrested when the charming Star varieties (see coloured plate) became popularised. They came from an old kind which had been little grown except in botanic gardens, and their graceful

habit, combined with their remarkable freedom of flowering and brilliant colours, soon made them great favourites. The Cinerarias are fragrant as well as beautiful. Although they are not fully hardy, they are so far from being tender that they will thrive in a frame until autumn, and afterwards in a cool greenhouse. No indoor plant is easier to grow. Seeds are sown towards the end of spring, and the young plants grown in a frame through the summer, receiving such attention in watering and potting as is called for. The only thing likely to give trouble is green-fly, which worries Cinerarias incessantly, and must be kept down rigorously, or it will spoil the plants. Perhaps the most simple plan of keeping it in subjection is to spray the plants with a decoction of quassia water once a week throughout the summer. The reader should buy a pound of quassia chips at a chemist's, and soak a handful in a gallon of water for a night.

*Clivia (Imantophyllum).*—There is not a great range of colouring in the *Clivia*, the prevailing shade being orange, but lighter and darker varieties than the type (*Clivia miniata*) have been raised, so that one may get salmon and saffron shades if one will, and others approaching scarlet. The plant has long, bright green, strap-shaped leaves, and bears its flowers in a large umbel at the top of a thick, strong stem in winter and spring. The coloured plate shows a plant associated with a white *Camellia* at Kew, where it was a brilliant feature of the greenhouse towards the close of winter. It thrives in a room. Normal soil suits, and propagation is easily effected by division.

*Coleus.*—The majority of the *Coleuses* are grown for their foliage, the flowers being of no value, but there is one notable exception—the blue, winter-blooming species called *thrysoideus*,



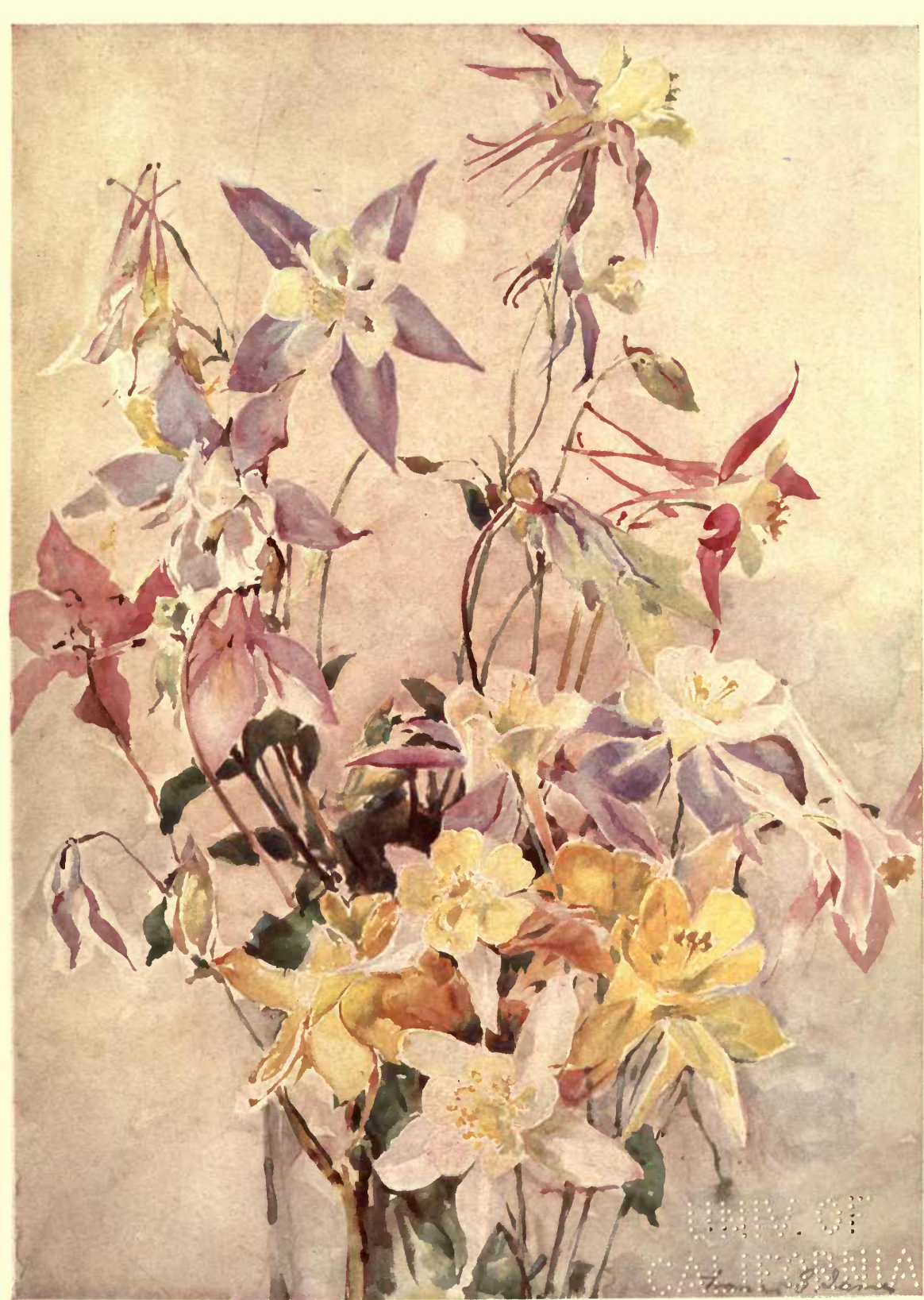
CINERARIAS

A, drainage in pan; B, compost; C, surface of sand; D, on which the seeds are sown; E, sowing seeds out of a paper funnel or spout.



which throws up tall, slender flower stems, crowned with a cluster of pale blue blossoms, in winter, and may be had in bloom at Christmas in a warm greenhouse. The leaf Coleuses are well worth growing for greenhouse decoration in summer, as their tints are very bright. They thrive in normal soil, and may be propagated either by seed or cuttings. The young plants should be stopped by nipping off the top when a few inches high, and the side shoots resulting stopped again. This has the effect of making them bushy.

*Cyclamen*.—There is no more beautiful greenhouse plant than the Persian Cyclamen, which produces its lovely flowers during winter, and may be had in bloom at Christmas. The reader doubtless knows the plant, with its fleshy, heart-shaped, marbled leaves standing in a thick, flattish cluster a few inches above the soil, and its graceful flowers hung like reversed bells on succulent stems. The coloured plate shows the plant well. In the grandiflorum (large-flowered) class the blooms are nearly double the size of the ordinary persicum. There is also a section with fringed edges, that is both distinct and beautiful. The pure white variety is one of the most valued, but a rich crimson is also very popular. There are other colours. The Cyclamens thrive in the normal mixture. Propagation is effected by means of seeds, which are sown in summer and early autumn for flowering in the autumn and winter of the following year. The plant forms a tuber, technically called a "corm." They grow slowly in the seedling stage, but fairly rapidly throughout the summer if abundance of moisture is provided. They enjoy humidity in the atmosphere as well as at the roots—indeed, without both they will progress but slowly. The plants can be preserved for several years if required. The old school of growers used to dry them off, but some of the most successful modern cultivators keep them growing constantly. Others do not preserve the plants in any state, but raise fresh ones from seed every year. These growers do not develop such



COLUMBINES (*Aquilegias*)  
By Francis G. James



TO YOU  
FROM THE

large specimens as those who keep old plants, but they obtain plants of a useful size, and very large flowers.

*Cytisus or Genista*.—There is a plant, beloved of market men, which forms a dense head of very small leaves and bright yellow, fragrant flowers, and is at its best in spring. It is often sold under the name of *Genista*, but is in reality a *Cytisus*—species *racemosus* or *fragrans*. This is one of the most useful of greenhouse plants for the amateur gardener, because it is very easy to grow, is brilliant in colour, and retains its beauty for a considerable time. It may be raised from cuttings, stopped once or twice to make it bushy, and subsequently kept several years by cutting it back after flowering. It will grow in the normal soil.

*Daffodils and Narcissi*.—See Bulb section. The amateur must not overlook the value of these beautiful hardy plants for his greenhouse. They will do good service for unheated houses. Popular trumpet Daffodils like *Horsefieldii*, *obvallaris*, *Henry Irving*, *Golden Spur*, and *Empress*; charming chalice-flowered sorts such as *Sir Watkin* and *Duchess of Westminster*; and the Poet's *Narcissi*, can be grown either in pots or china bowls filled with peat-moss fibre; and they will do splendid service in spring.

*Deutzias*.—The *Deutzias* are hardy shrubs, and are generally kept for garden cultivation, but there is one species—*gracilis*—which is cultivated almost exclusively under glass as a greenhouse plant. It can be bought from bulb-dealers in autumn, not as a bulb, like *Hyacinths* and *Tulips*, but as a clump of roots. It may be potted and treated generally in the same manner as bulbs, and it will wreath itself in white flowers in winter, earlier or later according to the temperature of the structure. Growers who want early bloom, and have the necessary convenience, will force it in a warm house. The plants can be kept from year to year by standing them on a bed of ashes out of doors for the summer, and pruning and repotting in autumn. Or fresh plants can be raised by striking cuttings of the shoots.



*Dipladenia*.—A beautiful plant for the roof of a stove, or for training round a trellis in a pot. Different species and varieties have rose, pink, crimson, or white flowers, large, expanded, and showy. If grown in a warm, moist house the plant will be in beauty for a considerable time. It likes a compost in which peat predominates, but the latter should be stiffened up with some loam. It can be propagated by cuttings of the young shoots when it starts growing in spring, if bottom heat is available.

*Erica* (*Heath*).—In years gone by what were termed hardwooded plants enjoyed high favour, but that is hardly the case nowadays. The Heaths (*Ericas*) were, and are, the most esteemed of this class, once so important, but now ignored by the majority of greenhouse owners. They are evergreens, and bear their slender, eardrop-like flowers on the main stems. They are unquestionably most graceful plants, and it is quite probable that they would have maintained their hold on the public to this day but for two things—their slow growth, and their extreme impatience of over or under watering. Some nurserymen succeed with them by growing them together in one house, and putting them under the charge of an experienced man. Amateurs cannot afford this luxury. If Heaths are grown at all they have to make shift with other plants, and submit to the treatment which their neighbours receive. Sometimes this means that they get too dry once or twice, or are tended by one of those indiscriminating persons who like to flood everything they grow with water twice every day, irrespective of season and weather; in either case the Heaths promptly die. The normal compost does not suit *Ericas*. They require peat, and nothing but sand need be added to it. Propagation is effected by striking young shoots in summer.

*Eucharis*.—*Eucharis amazonica* or *grandiflora* is a stove plant which throws up a cluster of broad, dark green, glossy leaves from a large bulb, and bears pure white flowers on the summit of a thick stem in winter. It is a beautiful plant, and a great favourite with those who have a hothouse. It will thrive in the

normal mixture, and may be propagated by taking the offsets which form and growing them on. It sometimes falls into ill-health in spite of correct heat and general treatment; when this happens, the presence of a mite on the bulbs must be suspected. This little enemy is accountable for a great many failures when its presence is entirely unsuspected. The way to attack it is to dissolve three ounces of liver of sulphur (sulphide of potassium) in a gallon of water, and soak the bulbs in it for a quarter of an hour, then spread them to dry and repot them.

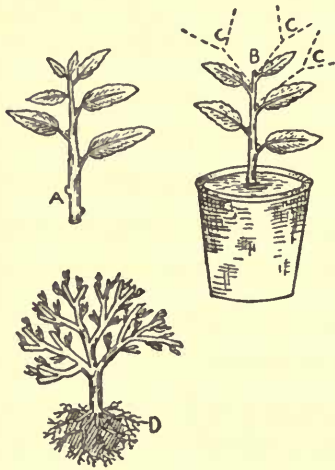
*Francoa ramosa*.—Some people may know this under the name of the Bridal Wreath—a pretty, popular term, which may be expected to attract the attention of the fair sex. The plant is well worthy of being grown. It throws up a long, arching stem, well furnished with charming white flowers. It is a herbaceous perennial, and so nearly hardy that it will thrive out of doors in mild districts, and may be grown in a cool greenhouse. It makes a charming window plant. It thrives in the normal soil, and may be propagated either by division or seeds.

*Freesia*.—This beautiful and fragrant flower is dealt with in the Bulb section.

*Fuchsia*.—One of our old-time favourites, the popularity of which has not diminished in any marked degree, in spite of the rise of other flowers. Perhaps new varieties do not flow as freely as of yore, but that is partly due to the fact that the plant has already improved so much that further progress is difficult. We really have a very good selection of sorts from which to make a choice, and need not crave for fresh introductions every year, especially if we are trying to keep pace with the output of certain flower garden plants, such as the Dahlia and Sweet Pea. Every owner of a greenhouse likes to have a few Fuchsias, and when they are fully grown and well bloomed he is not likely to have many things more attractive. They are not difficult to manage, but, as many cultivators of them know, they are apt to cause disappointment by casting their flower buds. This is



commonly due to mistakes in watering, and if the hints that were given in the notes on this important subject in the early part of the chapter are followed, it is not likely that a great deal of trouble will ensue. Alternate stages of absolute dryness and soddenness are bad, and a uniform degree of dampness is desirable. The normal soil suits Fuchsias quite well. They are generally propagated by cuttings in spring. These are taken from old plants which have been kept



FUCHSIAS

A, cutting; B, point of cutting (when rooted) pinched off; C, C, C, the three resultant shoots again stopped causing six shoots to grow; D, old plant ready for repotting after being pruned, and ball of soil reduced.

in a dry state throughout the winter, which have been pruned in spring, and which have been syringed to insure a strong break. The cuttings are made of the young shoots, being taken off when about three inches long, inserted firmly in sandy soil, and preferably put under a handlight or bell-glass. They are soon rooted, and young plants thus raised are generally more satisfactory than old ones, which, however, may be grown on and flowered if desired. The young plants would run up tall and straggly if left to themselves, and it is wise to stop them when they are about six inches high, and the resulting side shoots may be stopped in turn when

four inches long if much branched plants are wanted. The nipping-off of the growing tip with finger and thumb suffices for stopping. The pinched plants will be compact and bushy, will flower freely, and will remain in beauty a long time if carefully watered, and supported with liquid manure. When they go out of bloom towards the end of summer the seed pods should be picked off, and the plants gradually brought into a dormant state by diminishing the supplies of water. They may be kept dry in a cool but frost-proof place for the winter. The purchaser of a collection of Fuchsias should get both single and double varieties, and different colours.

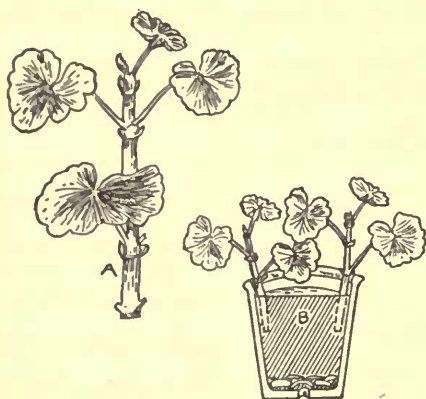
The following are excellent sorts, providing each of these requirements. *Doubles*: Champion of the World, Phenomenal, White Phenomenal, and Miss Lucy Finnis. *Singles*: Beauty of Trowbridge, Countess of Aberdeen, Lye's Excelsior, and Rose of Castile.

*Gardenia*.—Everybody knows this beautiful, pure white, highly perfumed flower, but the partiality of the plant for a warm house debars many people from growing it. While not absolutely fastidious, it asks for certain requirements to be met. It enjoys a comfortable degree of heat, such as that of a stove, and abundance of atmospheric moisture. It likes a free root run, and on this account often does better when planted out than when kept in a pot. At the same time, if young plants are raised every year (a plan adopted by many successful growers in preference to keeping old plants from year to year), they succeed admirably in six-inch pots. While it will grow in the normal mixture, it prefers peat to leaf-mould, and consequently the former may be added to the compost instead of the latter. Lastly, it needs to be kept quite free from mealy-bug. Cuttings made of the young shoots strike readily in January if placed in bottom heat.

*Geranium (Zonal Pelargonium)*.—Once the reigning queen of the flower garden, the cheerful Zonal has declined in favour with a large section of garden lovers; but even if we dispense with it in the flower garden we need not do without it under glass. To make an order for entire expulsion would mean depriving ourselves of a plant that may be had in full bloom right through the dull days of winter, and so lighten up our greenhouses and conservatories at a period when they might otherwise be bare. In spite of the hard things that are said about the Zonal Geranium by flower gardeners of the modern artistic school, it is not by any means a plant to be condemned indiscriminately. In no plant grown do we get a more marked persistency of flowering, and more brilliant and varied colours. It will bloom at midwinter as readily as at



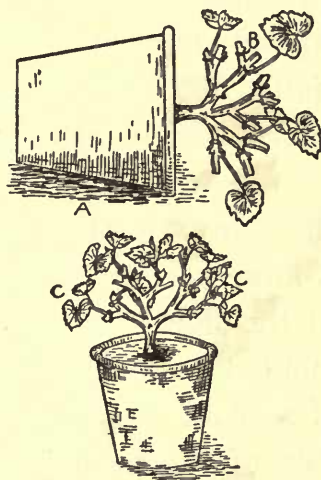
midsummer if it is properly managed, and given a light, warm greenhouse or conservatory. Those who have two or more houses



PROPAGATING ZONAL PELARGONIUMS  
A, cutting prepared; B, cuttings inserted.

can have successions of plants if they like, and so have flowers right through the winter and spring. Propagation is easily effected by means of cuttings of young growing shoots, taken off about three inches long, just below a joint, in April or May. They must not be kept moist and close, like most cuttings, or they will damp off. Each cutting may have a separate small pot, filled with sandy soil made quite firm; or several cuttings

may be put in a large pot, in this case being inserted just clear of each other all round the sides. When they begin to grow they may have a small pot each, in which they may remain until they have filled it with roots, when they should be transferred to five or six inch, using the normal soil, and making it quite firm. There is no need to keep them under glass during the summer; they will be better in the open air, so long as they are stood on a bed of ashes to keep out worms, and are not forgotten in dry weather. They may be placed under glass towards the end of September. They will probably begin to throw up flower stems at once—indeed, they may do so while in the garden; but if good winter blooming is desired, these should be picked off as fast as they show until November or December, when they may be allowed to come into flower. They ought to be strong plants by



SHOW, OR FANCY PELARGONIUMS  
A, old plant cut back, pot laid on side, plant resting; B shows where old stems were cut back; C, C, young shoots growing.

that time, and if watered carefully and fed with liquid manure will give splendid trusses of bloom, large in size and lustrous in colour. When spring comes, fresh cuttings may be taken for the next winter's display. The old plants will come in useful for tubs or vases in the flower garden, where they may be planted in the early part of June, and where they will do good service.

Although the Zonal Geranium is so old a flower, and novelties have flowed in a steady stream for many years, there is still a demand for them, and they come. But we already have such beautiful material that the everyday Geranium lover can well afford to leave novelties alone, and stick to established favourites. Here are a few charming varieties, embracing a suitable diversity of colours. *Doubles*: Colossus, crimson; Californie, orange; Rosa Bonheur, pink; Alsace Lorraine, magenta; Pierre Loti, rose; King of Denmark, salmon; Raspail Improved, scarlet; and Miss G. Ashworth and Hermione, white. *Singles*: Lord Rosebery, crimson; Sunbeam, orange; Gertrude Pearson, pink; Blue Peter, magenta; Duchess of Portland, rose; Coleridge, salmon; General French, scarlet; and Niagara and Snowstorm, white. All are good and cheap.

*Gladioli* may be drawn upon for the greenhouse, as one or two, notably *Colvillei* and its white variety, are suitable for early flowering in pots. They may be treated like bulbs, such as Hyacinths.

*Gloxinia*.—A magnificent tuberous plant, with large, expanded bell-shaped flowers of the most lovely colours. It responds to the same treatment as Begonias, being raised from seed in the first place, and then preserved from year to year by drying off and restarting the tubers periodically. Those who have a fair amount of glass accommodation will probably make the most of this splendid plant by sowing seed at different periods, and so insuring successions. Nice flowering plants can be got in six to eight months from the time of sowing.



*Heliotrope*.—The “Cherry Pie” of our forebears is too familiar to need any description. Its delicious perfume endears it to every one. It is quite an easy plant to grow, and no one who has a warm greenhouse or intermediate house need pass it by if he wishes to have it. Many grow it out of doors during the summer, and those who do so can propagate it by means of cuttings, which may be taken in September or October from growing shoots. It also comes readily from seed, which may be sown in spring. The normal soil suits it. To get nice, bushy plants it is advisable to stop the shoots once or twice, as in the case of Fuchsias. One sometimes meets with old plants of Cherry Pie planted out in large conservatories, and covering a considerable expanse of wall. When in full bloom they fill the house with delicious odours, and may be cut from freely. Miss Nightingale, White Lady, and Adèle are three charming varieties which may be increased by cuttings. Seed is procurable of the old light blue species *peruvianum*, which is deliciously sweet.

*Hyacinth*.—See Bulb section.

*Hydrangea*.—A somewhat stiff and formal plant this, and yet a popular market favourite. Its large, rounded head of pink blossom makes it very conspicuous. The one so largely grown for market is *hortensis*, and there are several varieties of it, notably the white one called Thomas Hogg. It thrives in the normal soil. Propagation is by cuttings, which may be taken from growing shoots in spring, or from growths with flower buds in autumn. The former may be grown in a frame in summer, potted in August, and kept out of doors until the end of September, when they may be put in the greenhouse. If early bloom is wanted, they may be subjected to gentle forcing in spring.

*Jasmine*.—Several of the Jasmines are flower garden plants, but all are not hardy—in fact, one or two of the most beautiful require a stove-house. The species *gracillimum* is a case in point; this is a beautiful white Jasmine. *Grandiflorum*, also white, thrives in a

greenhouse, as does primulinum, cream to yellow, a charming kind, with very large flowers, and thriving as a bush in a large pot; a plant so grown in the greenhouse at Kew forms a part of one of our coloured plates. Sambac, white flowered, is a hothouse species; both it and its double form are popular plants. With the exception of primulinum the Jasmines are grown as climbers. They are frequently planted out in a bed, and trained up a pillar. They will thrive in the normal soil, but enjoy a little peat. Propagation is effected by cuttings, which should consist of firm young wood with a base of older wood; they root with the greatest certainty if kept close under a handlight or bell-glass. To get the finest flowers some pruning should be practised, the young shoots which have bloomed being cut out to make way for new wood. At the same time, it is not desirable to cut the plants as severely as exhibition Roses; allowance should be made for the free, graceful growth which is so desirable.

*Lapageria*.—The *Lapageria* is one of the most beautiful of roof plants for intermediate and cool houses. The flowers are tubular, three to four inches long, and one to two inches across at the mouth. The type is rose, and there is a white variety of it. They are of great substance, and the white is quite wax-like in its texture. The writers once had to do with a remarkable plant that covered the roof of a long glass corridor, and bore thousands of lovely flowers every year. The *Lapageria* likes a peaty rather than a loamy soil. Propagation is by layering, but it is not often that many plants are wanted, as one will cover a considerable area.

*Lilac*.—The old Lilac of the flower garden is so sweet and popular a flower that it is natural to feel an interest in the new hybrid forms which come out from time to time. These are much larger than the old favourite, and just as sweet; moreover, they give us quite new colours. They are so bright and fragrant, and so well adapted for conservatory adornment, that it seems a



pity to restrict them to the flower garden. It is becoming more and more common to lift small plants in autumn, pot them, and gently force them into bloom. After flowering the bloom heads are cut off and the plants put out again, or the pots are plunged in ashes in a spare corner for the summer. The normal soil suits them. Propagation is effected by cuttings or by grafting. Among many beautiful varieties the following may be named: Charles X., lilac; Madame Lemoine, double white; and Rubra de Marly, red.

*Lilies.*—See Bulb section for notes on Lilliums and Lilies of the Valley. The Scarborough Lily (*Vallota purpurea*) is a brilliant scarlet bulb, which is much esteemed for greenhouses, and is often grown in a window. It is easily managed, thriving in the normal soil. The best time for potting is in early summer.

*Mignonette.*—Our fragrant flower garden favourite must be pressed into service as a pot plant, more especially as there are several varieties of it admirably adapted to pot culture, notably Miles's Spiral, Parsons' White and Machet. When Mignonette is grown in pots as excellently as the market-growers produce it, it is a handsome as well as a sweet flower. It is best to sow about a dozen seeds on the surface of the soil in a six-inch pot, and thin them to half-a-dozen of the strongest plants at about equal distances apart. This may be done at intervals of a few weeks right through the year, in order to get a succession of bloom. With a little attention to staking and tying, charming pots of deliciously scented flowers can be got.

*Musk.*—Another fragrant favourite, easily grown from seed, and making a very pretty object when trained on a small, neat trellis of split laths in a pot. If one has a plant, some pieces of the root-stock may be set an inch apart in a six-inch pot. If not, seed may be sown in the ordinary way in spring. The Musk likes moisture and shade.

*Myrtle.*—Myrtles are strong, free-growing plants, and hence are not suitable for small greenhouses, but they are well adapted

for large, airy conservatories and corridors, where they may be grown in large pots or tubs. They are generally esteemed for their fragrant foliage, and the white flowers are not particularly attractive. The plants thrive in the normal mixture, and with due attention to watering will live for many years.

*Oleander (Nerium).*—The Oleander is conspicuous by its large, symmetrical, brilliant flowers. It has the reputation of being what gardeners call a “dirty” plant—that is, it is much worried by aphides, and some refuse to grow it on that account, but if the course of action recommended under Insects is adopted there ought not to be any serious trouble. It is a plant to grow for large, airy houses, in which it may be encouraged to grow to a considerable size. It will grow very well in the normal mixture, but enjoys some peat in the compost. It may be increased by cuttings.

*Orange.*—Small Oranges make very pretty greenhouse ornaments when they are grown in pots, and are well furnished with fruit. Many people raise them from pips, and are disappointed that they do not get fruit; the fact is, seedlings are generally barren, but they can be transformed into fruitful plants by uniting to them a shoot from a plant which bears fruit. This is effected by the process known as inarching. A slit is made in the stem of the plant which does not bear, and a corresponding slit is made in one of the shoots of the fruitful plant. The two parts are brought together and bound. When they have united the two plants are cut apart. Oranges succeed in the normal soil.

*Pancratium.*—*Pancratium fragrans* is a beautiful, sweet, white-flowering stove bulbous plant, which blooms in summer and early autumn. The perfume and purity combine to make it a great favourite with owners of hothouses, and fortunately it is not difficult to grow. With the addition of a fourth of peat, the normal compost will suit it perfectly, and it may readily be increased by offsets.



*Petunia*.—The fringed single and double forms of this flower garden favourite are excellent plants for the greenhouse. The florists now have remarkably fine strains of the doubles, the flowers being immensely large, and most richly coloured. When these are well grown they make very handsome specimens. They are almost invariably treated as annuals, being raised from seed and flowered in the course of a few weeks. The normal treatment, both as to sowing and soil, will suit them admirably.

*Plumbago*.—*Plumbago capensis* is a popular greenhouse plant, and sometimes finds its way into a room window, grown in a pot, and trained on a trellis. It is a vigorous plant, and is often planted out in large houses, and trained up pillars, where it produces its blue flowers freely in summer and early autumn. The young shoots may be pruned in closely after flowering, as better flowering wood forms when the plant is thinly grown than when it is crowded with shoots of all sizes. It may be propagated by cuttings in spring, and grown in normal soil. The species *rosea* is also a popular *Plumbago*, and may be had in flower in a warm greenhouse in winter by striking cuttings in spring.

*Poinsettia*.—The flat, scarlet bracts of this plant, taking the place of flowers, are most brilliant, and cause it to be a great deal sought after by gardeners, who take short pieces of the old stem in spring, and strike them in bottom heat; or strike cuttings in late summer for winter blooming. Given the temperature of a hothouse *Poinsettias* thrive in the normal soil, and when in full beauty no flowering plant will be more brilliant.

*Primula*.—The Chinese Primrose (*Primula sinensis* of botanists) is one of the most popular of all greenhouse plants, and no surprise can be felt at this when a good collection is seen in full beauty, for the plants have handsome foliage, from the centre of which rises a sturdy stem six or eight inches high, crowned with a cluster of round, fringed flowers, ranging in colour from white to flesh, pink, salmon, rose, and crimson, and also comprising

shades of blue. Bearing in mind that we can get *Primula* beauty at mid-winter, and that without the aid of a hothouse, we recognise how valuable the plant is. Many growers take care to sow successions in March, April, May, and June, so as to get regular batches of plants in flower over as long a period as possible. The seed is rather dear, but a good strain is worth what it costs. The normal treatment as to sowing and soil suits perfectly. The plants are best in a frame during the summer, where they can be given abundance of light and air. If they are grown in a greenhouse, care must be taken to keep them close to the glass while they are small. There are other valuable *Primulas* for indoor flowering besides the Chinese. *Floribunda*, with yellow flowers in spring; *kewensis*, a yellow-flowered hybrid that blooms in winter; and *obconica*, lilac, spring flowering, are three particularly desirable ones. *Obconica* is now represented by many varieties, differing in colour from the parent. It is a very free-flowering, bright, and easily grown plant, but gives trouble to some growers by causing a painful skin-rash. Gloves should be worn when it is handled by those who are subject to this affliction.

*Rose*.—See special section.

*Salvia*.—The brilliant *Salvia splendens* is a well-known, winter-blooming greenhouse plant, and it is so easily grown that it ought never to be overlooked by amateurs. Its flowers are borne in great profusion, and are of a vivid scarlet colour. But it is not the only winter-blooming *Salvia*. *Heerii*, also scarlet, is another that will flower in the greenhouse in the dull season. There are, too, several fine varieties of *splendens*, one or two of which may be preferred to the type. *Bruantii*, for instance, is splendid, and *grandiflora* is also excellent. There are two good blue *Salvias*. The best known is *patens*, which has flowers of a deep "Oxford" blue, and is a very useful plant, but it is a summer bloomer. *Azurea*, also blue, flowers in summer and autumn. There is a beautiful rosy red *Salvia* named *Bethelli*, which blooms in summer.



All these thrive in the greenhouse in the normal compost. They are propagated by cuttings towards the end of winter, but the invaluable splendens comes well from seed.

*Schizanthus* (*Butterfly Flower*).—Beautiful plants are these, with abundance of light sprays, densely clothed in bloom. There are no plants more free-flowering, none more elegant, though many more brilliant in colour. They come readily from seed, and will flower in an unheated greenhouse in late summer and early autumn if sown in spring. Seeds sown in a heated greenhouse in August or September produce plants which will bloom profusely in the following year. Every owner of a greenhouse must grow the lovely Butterfly Flowers. He must not think that because the botanical name is somewhat long and difficult the plant itself is forbidding. Long, hard names seem to cling to the Butterfly Flower. Thus, one of the prettiest of the older kinds is called papilionaceus, while the magnificent new sort which has charmed all lovers of this delightful annual is called *Schizanthus Wisetonensis*. It is tough, certainly, but the plant would be grown if a dozen more names equally formidable were tacked on to it. Coming readily from seed, charming in colour, neat in habit with a little pinching, so free in blooming that the plants are perfect pyramids of blossom, it is one of the real gems of the floral world. The normal soil suits it to admiration.

*Solanum* (*Winter Cherry*).—The flowers of this plant are of little beauty, and it would not be grown much were it not for its bright orange berries, which form freely, and hang most of the winter. The species *capsicastrum* is the one to order from the seedsman, and it will be found very easy to manage. It not only comes readily from seed, but also from cuttings, which may be struck from portions of young shoots when the plants start growing after being cut back, which is done when the berries begin to shrivel. The cuttings had better be given bottom heat to insure their rooting quickly. The plants will be all right in a cold frame,

or even planted in the garden, during the summer. Beyond watering, the only attention needed is to keep them free from green-fly, which is very partial to them. The normal mixture will suit. There are several other attractive *Solanums* beside the Winter Cherry, notably *jasminoides* (Jasmine-like), a summer-flowering greenhouse climber with blue and white flowers; *Wendlandi*, a summer-flowering climber for the intermediate house with blue flowers; and *Worsleyi*, which bears white flowers in summer, followed by red, egg-shaped fruits. They will all do in the normal mixture.

*Sparmannia africana*.—Without being precisely a popular plant, or possessed of any striking qualities, this yet enjoys a very fair measure of favour. It is uncommon in appearance, it grows freely into quite large, shrub-like dimensions, and it blooms in winter in a greenhouse. These are claims not without weight. The flowers are white, with prominent, coloured stamens, and they are borne in large clusters. Cuttings root freely in spring if given a little bottom heat and air is excluded. The normal soil suits.

*Spiraea japonica*.—A plant of many names. At one time the botanists called it *Hoteia japonica*, now they have decided that it shall be *Astilbe japonica*. We adhere to the name by which it is almost universally known among trade and private cultivators. The *Spiraea* is one of the plants which bulb-dealers supply in autumn, although it is not, of course, a bulb. They offer what are known as "clumps"—masses of roots and earth compacted together. These are put into pots large enough to admit of some good soil (normal mixture) being rammed in, and just covered. They will flower in spring in an ordinary greenhouse temperature, but growers often push them forward in gentle heat.



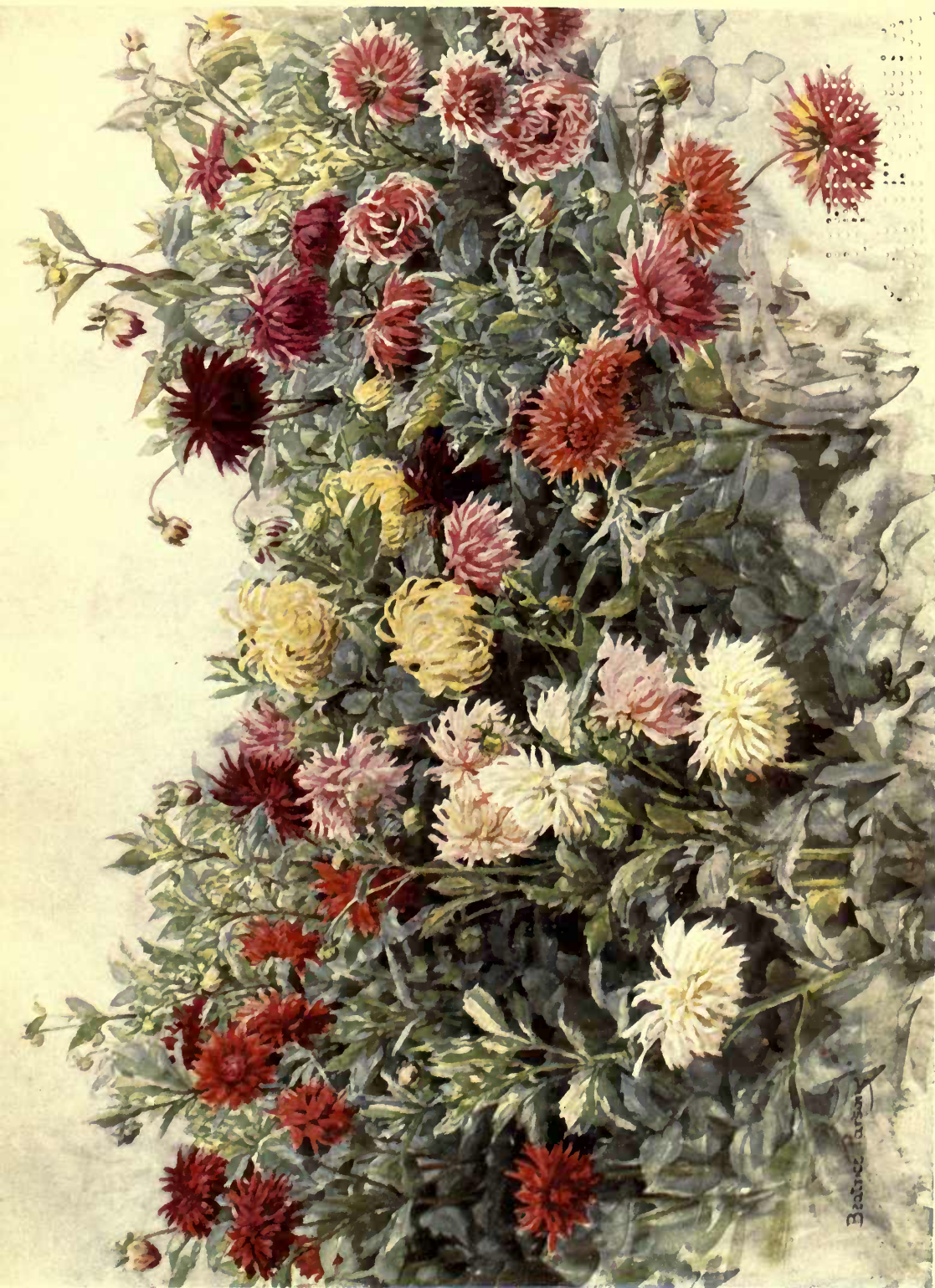
A, clump of *Spiraea* for planting; B, stems cut off at this point when flowers, C, and leaves and stems have faded.



The long, graceful plumes of white inflorescence are almost too well known to need any description. They are valuable for cutting. Well-bloomed plants may be placed in room windows. They are thirsty plants, and must have abundance of water. In their case the plan of standing the pot in a saucer of water is permissible, especially if they have to be left unattended for some time. It may be added that the saucer plan cannot be recommended for general adoption, although it is much—too much—practised by amateurs. The roots of the Spiraeas may be planted out in moist, rich soil in spring, and lifted again in early autumn.

*Stephanotis*.—The pure white, deliciously perfumed *Stephanotis floribunda* is a great favourite with every lover of flowers, although everybody cannot grow it, owing to the fact that it needs the temperature of an intermediate or stove house. Gardeners generally grow it for rambling along the roof, and keep a careful eye upon it to see that it does not get covered with mealy-bug (see Insects), which often makes untended plants quite filthy. The *Stephanotis* loves warmth at all times, and warmth in combination with abundance of atmospheric moisture in summer. It is a mistake to allow it to become crowded with shoots, as not only is it then more difficult to cleanse, but the flowers are not so good. It likes a good admixture of peat in the compost. Propagation is effected by inserting cuttings of side shoots in bottom heat in spring, and excluding the air from them.

*Stocks*.—The greenhouse lover must not overlook the *Stocks* because they are generally grown out of doors. Apart from the fact that the Ten-weeks make charming pot plants, and are well adapted for unheated greenhouses, owing to their flowering in a few weeks from seed sown in spring, he must remember that there is a class almost exclusively grown in pots. These are called Intermediates, and most charming they are. They are treated as annuals or biennials, in the former case being sown in spring for



CACTUS DAHLIAS  
By Beatrice Parsons





autumn blooming, and in the latter in summer for flowering the following spring. Several colours are obtainable. They succeed with the normal soil and treatment. The East Lothian is another fine strain of pot Stocks.

*Streptocarpus*.—This is an example of an old plant taken in hand by hybridisers and improved so much as to become practically a new flower. It is a most charming plant, bearing abundance of attractive, tubular flowers, which embrace many pleasing shades of lavender, grey, blue, lilac, and mauve. In the newest forms the size of the flowers has grown so much that the *Streptocarpus* promises to rival the *Gloxinia* in a few years' time. The foliage is handsome too. It may be grown in a greenhouse, but it is often given a warmer structure in order to get earlier bloom. It comes from seed readily enough, and may have the normal treatment. Seed may be sown in spring for giving strong flowering plants the following year. The plants may also be propagated by leaf cuttings, in the same way as some of the *Begonias*.

*Torenia*.—The lovely little *Torenia*s are not half enough grown by owners of hothouses, considering that they are easily raised from seed. The beautiful violet species *Fournieri*, and the equally pretty yellow *flava*, or *Bailloni* as it is often called by seedsmen, are real gems, bearing their exquisite flowers in profusion. The latter species is often grown in baskets, to which purpose its pendulous habit lends itself. The seeds may be sown in spring, and given ordinary treatment, while the normal soil will do quite well, although some peat may be added with advantage if available.

*Tulips*.—See Bulb section.

The foregoing notes do not include all the plants worth growing in glass-houses—to do that would be to greatly exceed the space available—but they comprise the most important, and will serve to show that there is abundance of material at the service of cultivators.



## WINDOW AND ROOM PLANTS

THE cultivation of beautiful flowers in windows and rooms is one of those delightful pursuits which appeal to all classes. The owner of a dwelling loves to see it embellished with flowers, however humble it may be. He or she (for the sexes take an equal interest in this phase of plant culture) delights in decorating the windows. As a rule, the town amateur gardener grows his plants on the outside sill, and the countryman within the room. One does not often see the interior of a town window packed with plants. The main reason for this is that in towns every inch of house space is utilised. If a town workman has a spare room he promptly lets it, in order to help himself out with his heavy rent. The countryman, on the other hand, always likes to have a spare room, which, however small the dwelling, is rarely used. His little parlour is generally a sacrosanct institution, only to be occupied on State occasions. Truth to state, it generally smells very musty, from want of ventilation and use. If you tried to open the window, you would probably find that it was fixed too firmly in its frame to be moved. But the chances are that you would never be able to get near enough to the window to make an attempt at ventilation, because of the huge barrier in the form of a plant-stand.

One cannot very well condemn Hodge for cultivating plants inside his windows, and advise him to grow them on the sill; in the first place, because the cultivation of room plants is beneficial; and in the second, because he has no sill. But it is certainly desirable to expostulate gently when a window is blocked. That is not good either for the plants or Hodge, not to speak of Mrs. Hodge and the junior Hodges.

We have said that the cultivation of room plants is beneficial, and in this connection it may be well to say a word on the influence of plants on health. The budding student will tell you that the animal world inhales oxygen, and exhales carbonic acid, thus vitiating the air; but that plants inhale carbonic acid, and build up the carbon into their system. So far good, the plant restores nature's balance by taking from the air the impure substance which the animal has poured into it. But the budding student goes further; he tells you that the plant's functions are reversed at night, and consequently, that while a collection of plants in a room is healthy during the day, it is unhealthy after nightfall. If this were strictly correct it would be a somewhat serious matter, for it would show that plants are a source of danger in bedrooms, and must certainly be kept out of the rooms of invalids. But it is not entirely accurate. The change in the functions of the plant ought rather to be described as suspension than reversal. Certainly, so far as respiratory action is concerned, the presence of a plant or two in a bedroom cannot be regarded as inimical to the health of human beings; and one gas-jet with an ill-fitting burner, still more one stuffed chimney, or one window that will not open, will do far more harm. Any one who has the least fear of evil consequences, yet does not like to discard his plants, may rest assured that if he will remove the stuffing from the chimney, and keep his bedroom window open all night, he will never suffer from the respiratory processes of plants.

There is, however, another matter to be considered, and that is the perfume of strongly scented flowers. This certainly has a deleterious effect on some persons, even when they are in health. Here the "personal equation" comes in. There are instances on record of a brave soldier trembling violently merely because a cat came near him. One person will enjoy the odour of a Hyacinth; another will be overcome by it. Experience will soon teach valuable lessons on this matter. Strong-smelling flowers must



not be kept in a room, especially in a sick-room, if they trouble the occupant; on the other hand, they should not be expelled without cause, for their fragrance and cheerful appearance may do real good by raising the spirits of the invalid.

Now, what about the other side of the question—the effects on the plants of being kept in a room? They have to be considered also. A great many plants will remain in health for months, and even years, in a light, airy room, that would become unhealthy in a week in a dark, stuffy one. Plants may serve a real purpose in rooms by indicating, from their condition, the purity or impurity of the air. There are one or two plants, notably the *Aspidistra*, which will stand almost anything—bad air, draughts, alternations of heat and cold, neglect in watering—but the majority will not. Most plants do badly in rooms lit by open gas-burners if the window is not kept open at night, as it always should be. Things are not so bad where good incandescent burners are used. Oil lamps, too, are less deleterious. Even delicate, susceptible plants may be kept fairly healthy in artificially lighted rooms if they are stood in a position below the level of the illuminant, and if the window is kept open. The latter point cannot be too often pressed home. Ventilation is good both for human beings and plants. Foul air is more dangerous than a draught, although the latter should be avoided, as it may be. If the window is only open to the extent of about an inch a great effect is exercised upon the air of the room, especially if there is an open chimney, with or without a fire.

Success in the cultivation of room plants turns partly upon the choice of material, and partly upon care in ventilating and watering. It is not wise to choose very tender plants, because rooms, however warm during the day, are often cold at night. It is not prudent to rely upon ferns, unless they be grown in a case, because the air is likely to be too dry for them. If a tender plant is grown it should be removed from the neighbourhood of a window when

the family retires to rest, and in cold weather covered with several thicknesses of newspaper. Should it happen to get touched by frost it should not be stood near the fire, or hurried away to a hothouse, but should be stood in a cool, shady place, and sprinkled with cold water. This will save it, if anything will.

Let us draw up a list of plants which will thrive in rooms, with proper care and attention, putting them in two classes—plants desirable owing to the possession of handsome foliage, and plants which have beautiful flowers.

FOLIAGE PLANTS

<i>Palms.</i> — <i>Areca lutescens.</i>	* <i>Geonoma gracilis.</i>	<i>Phoenix reclinata.</i>
<i>Kentia Forsteriana.</i>	* <i>Latania borbonica.</i>	* <i>Seaforthia elegans.</i>
<i>Cocos Weddeliana.</i>		

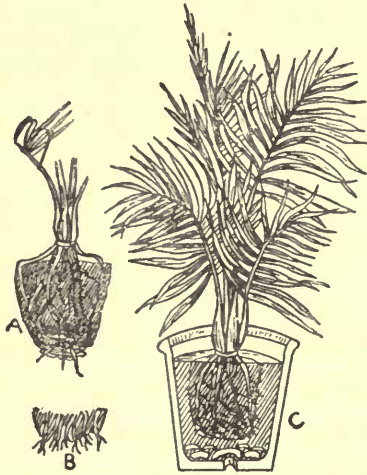
\* These three might be chosen if six were too many.

Palms may be maintained in health for years in living-rooms, even if gas is burned, with ordinary care and attention. They should be kept in or near the window, in order that they may get plenty of light; being turned occasionally, to bring a different side towards the light. A compost of three parts fibrous loam, one part each of leaf-mould and decayed manure, and a tenth of coarse, washed sand will suit them. They should be watered when the pot rings hollow under the knuckles, and at no other time. During mild showers they should be stood out of doors for an hour or two, as the rain will cleanse and freshen them. An occasional sponging with soft, tepid water will also do them good. This attention to the foliage is of great benefit to palms, and a most important factor in keeping them in health. They will not grow fast, nor is it desirable that they should. Repotting once a year will be ample, and this may be done in spring. When they have got to the largest convenient size of pot, top-dressing may be substituted for repotting. The plant may be



turned out of the pot, the outer casing of soil crumbled away, the drainage rearranged, and the plant replaced in the pot, fresh earth being rammed down the sides, and packed on the top. Neither in top-dressing nor repotting should the pot be filled quite full; an inch of space must be left for water—two inches in the case of a large pot. It is almost essential that the pots should be stood in saucers of water, in order to prevent the mess that would be made by water escaping through the drainage at

every watering, but the water should not be allowed to rest in the saucers all day, except in summer; and even then periodical emptyings will have to be resorted to, so as to avoid an overflow. This question of providing for superfluous water is a drawback to window plants, but it is unavoidable, unless the grower is prepared to carry the plants out of the room every time they are watered.



POTTING PALMS

- A, *Phoenix reclinata* turned out of pot;  
 B, crocks and interlacing removed;  
 C, plant repotted.

Some amateurs affect to be able to perceive great virtue in the use of tea-leaves on palms and other room plants, but it is not clear that they have any special virtue. An ounce of superphos-

phate to the gallon of water, applied once a week or so, or a pinch of one of the advertised fertilisers spread on the surface and watered in, will do far more good.

Palms are propagated by seeds, but it is a slow business, except when abundance of bottom heat and moisture can be provided, and is best left to nurserymen and market growers who require very large quantities of plants. Young palms can be bought very cheaply indeed.

*Ferns.*—Every grower of room plants likes to have a few ferns. The plants have a grace and charm that even palms do

not possess. We will name a few species that will thrive in rooms with care. First we will name two exotic ferns:—

*Adiantum cuneatum*, the Maidenhair.

*Pteris serrulata cristata*, the Crested Ribbon Fern.

We will not say that the beautiful Maidenhair is an easy plant to manage successfully in a room, for it is not. It will not thrive in a room that is alternately hot and cold, is lit by open gas-burners, and is ill-ventilated. At the same time, we know of plants which have remained in excellent condition for several years in rooms. They were never subjected to cold, cutting draughts, but on the other hand they were not in gas-poisoned air. Great care in watering is necessary, and the plants must not be allowed to get frozen.

The Ribbon Fern does very well in a room, with care. It is charming in a small state for dining-tables, or for grouping with vases of cut flowers on occasional tables.

Any of the following British ferns may be tried in a room:—

*Adiantum capillus-veneris*, the British Maidenhair.

*Asplenium marinum*, the Sea Spleenwort.

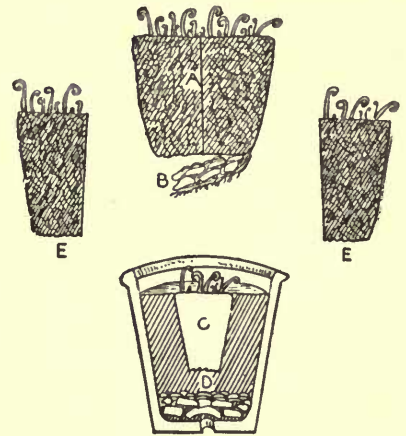
*Athyrium filix-foemina*, the lady fern.

*Lastrea filix-mas*, the male fern.

*Onoclea sensibilis*.

*Polystichum angulare proliferum*, a shield fern.

*Scolopendrium vulgare*, the Hart's-tongue.



DIVIDING AND REPOTTING  
MAIDENHAIR FERNS

A shows where to divide the ball of roots; B shows the crocks being removed; C shows the half of ball of roots potted in compost D; E, E, two halves of ball of roots and soil.

The best time for repotting ferns is the spring. The compost recommended for palms may be altered to the extent of reducing the quantity of loam by one-half, and substituting peat. A very good time to repot is when the new fronds are seen to be moving.



The procedure may be the same as for palms, and top-dressing may be substituted for repotting if more convenient.

If a Maidenhair should fall into ill-health it is advisable to cut it hard back, and let it break again.

Ferns are propagated by spores as a rule, which are gathered from the fronds, and sown like seeds, but the process is slow, and young plants can be bought very cheaply. Maidenhairs can be increased by division, which is best effected when growth starts in spring. They should be cut boldly through with a strong, sharp knife.



ASPIDISTRALURIDA VARIEGATA

A, side shoot held in position by peg; B, side shoot not needing such support; C, result in due course—a fine specimen; D shows the flower of the Aspidistra.

*The Aspidistra.*—The Parlour Palm, as *Aspidistra lurida* and its variegated form are often called, is not a true palm. It is one of the most valuable of house plants, because it will thrive under conditions that would lead to the speedy demise of most plants. It will thrive for a considerable period in a draughty passage. Of course, draughts are not good for it, and if they have their way for a long time they will tell their inevitable tale; but it is as

well to know of a plant that does not succumb quickly to unfavourable circumstances.

Most people prefer the variegated Aspidistra to the plain green, and are generally disconsolate when a variegated plant loses its silvery patches. They should learn that this is generally due to providing too rich a soil. The more luxuriant the growth, the greater the likelihood of a preponderance of green. Plain loam and sand will suffice; manure and leaf-mould should both be avoided.

The transference to the open air during showers, the sponging



FUCHSIAS IN THE GREENHOUSE  
By A. Fairfax Muckley



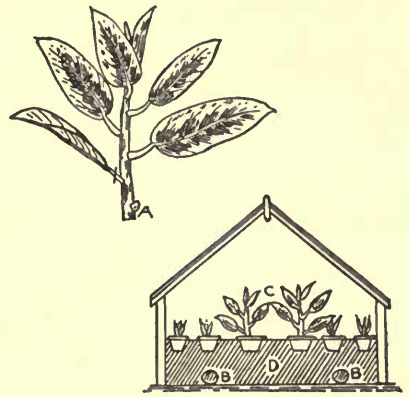
TO VIMU  
AIRBORNE

of the leaves, and the careful watering are as good for *Aspidistras* as they are for palms. The plant is of no value for its flowers, but it is interesting to know that these appear in an unusual way. They push up from the root-stock, and lie on the surface of the soil.

*The India-rubber Plant.*—This is really not a good room plant, because draughts, close air, and alternations of temperature cause its lower leaves to turn yellow and fall; when this happens the plant is the reverse of ornamental. But with the avoidance of draughts, and very careful watering, success is possible. The palm compost and general treatment will suit *Ficus elastica*.

We have known a skilful man dwarf a tall India-rubber Plant, the base of which was bare of leaves, very cleverly. It was done by cutting a nick in the stem, and binding moss round it, which was kept moist until rooting took place, when the upper part was cut away and potted. We will not promise success in this operation, however, unless a moist, warm temperature is available; nor will we in striking cuttings of short pieces of stem, each with a leaf attached, although experienced propagators can strike them with plenty of moist bottom heat.

*Rex Begonias.*—The invaluable *Begonia* genus gives us a useful foliage plant in *Begonia Rex*, and a beautiful flowering one in *Weltoniensis*, a fibrous-rooted species with pink blossoms. *Begonia Rex* has handsome marbled leaves, and a healthy plant looks remarkably well in a window. The flowering species is best brought into bloom in a warm greenhouse, and then moved to the room window, where it will retain its beauty for several



A, cutting of *Ficus elastica* prepared for insertion; B, B, hot-water pipes through a frame; C, cuttings in pots plunged in cocoa-nut fibre D.



weeks. Both plants will thrive in the compost recommended for palms if they are carefully watered. Begonia Rex is propagated by taking a mature leaf, nicking the midrib, and laying it on the surface of the soil in a pot or box: *B. Weltoniensis* by cuttings.

*The Parlour Fig (Aralia Sieboldii)*.—This plant (now called *Fatsia* by botanists, who have abandoned the familiar name of *Aralia*) has broad, deeply cut foliage, with very thick leaf-stalks. It will keep healthy in a room for a long time if carefully watered. It will not endure draughts like an *Aspidistra*.

#### BERRIED PLANTS

There are two berry-bearing plants admirably adapted for room decoration, namely, *Ardisia crenata* (or *crenulata*) and the Winter Cherry (*Solanum capsicastrum*). The former, although little known, is the better of the two, so far as endurance is concerned at all events. Its berries are much smaller than those of the *Solanum*, and are darker in colour. They hang on the plants for many months, and a plant will retain its beauty in a room for more than half a year if it is properly watered, and the room ventilated. The *Ardisia* will thrive in the palm compost. It may be propagated by cuttings, which may be struck in bottom heat in summer. Fairly firm wood should be selected.

#### FLOWERING PLANTS

The number of flowering plants available for rooms turns on whether there is a glass-house or not. The owner of a greenhouse will be constantly bringing nice plants that are just beginning to bloom into the rooms. They may be plants that would not thrive in a dwelling-house all the year round, but are quite suitable for embellishing it for a few weeks. It is an immense advantage to have a glass structure of some kind, because with its aid a succession of plants can be had the greater part of the year.

Bulbs will be valuable in the winter. They may be grown in water, in pots of earth, or in vases of peat-moss litter, as pointed out in our Bulb section. White Roman Hyacinths must be particularly borne in mind, because they are so beautiful both for the dinner-table and the window. With the aid of a warm greenhouse, flowers may be had on the Christmas dinner-table. Of course, these and other Hyacinths may be flowered in rooms without the aid of any glass whatever, as they can be brought straight from the plunging-bed to the house; the bloom is later, that is all. If Hyacinths are grown in glasses, they will of course pass a few weeks in a dark cupboard before being put in the window.

The lover of perfumed flowers will make a special effort to have a few pots of Freesias coming on in succession. One pot will suffice to fill a fair-sized room with delicious odour.

The beautiful white Arum Lily will not be overlooked. This, as we saw in another chapter, may be grown in the garden during the summer, and potted up towards the end of September. If it is kept in a pot throughout the year care should be taken to give it abundance of water, as it is a semi-aquatic plant, and soon suffers from drought. There is no need to keep it in the house all the summer through. It may be stood out of doors when it ceases flowering. That it is a grand room plant is proved by the sight of splendid old plants, which bloom freely every year. The Godfrey is a splendid variety.

Early Tulips, and Daffodils of the Trumpet and Chalice sections, are very useful for rooms. The Duc Van Thol Tulips will give very early flowers; and of the Narcissi, *obvallaris* (Tenby Daffodil), Golden Spur, and Henry Irving will be among the first in flower.

The Scarborough Lily (*Vallota purpurea*), which is also referred to under Bulbs, is a bright and useful room plant. Its colour is very brilliant.



One of the best of general flowering plants for rooms is assuredly the *Clivia*, which used to be known by the longer name of *Imantophyllum*. Visitors to Holland in winter and spring will observe how fond the Dutch are of this as a window plant. In passing through a town of any size one may see it in almost every one of the neat, clean, smart houses. It occupies the post of honour in the window of the main room looking on the street, and presents a very cheerful appearance, with its bright orange flowers. We dealt with the culture of the plant in our Greenhouse section.

Of course the Zonal *Pelargonium* looms largely in our tale of window plants. It is so free a grower, so profuse a bloomer, so gay, so accommodating, that it is in great demand. In collections of window plants at the flower shows "Zonals" are nearly always prominent—too much so sometimes, for a judge who is making the awards in a class for three or six window plants does not care to see the collection made up entirely of "Geraniums." He likes to see at least two kinds of plant, and is better satisfied with three. As we saw in our Greenhouse section, there are many beautiful varieties, and those who have a warm structure can have winter-blooming plants by striking cuttings in spring and picking off the flower-buds until autumn. The plants could not be expected to remain in health and bloom long in an ordinary room in winter, because it would be too cold at night. Nice autumn bloom can be obtained by potting up some sturdy plants out of the flower-beds.

As a variant on Zonals, there are Ivy-leaved and scented-leaved "Geraniums." Many cottagers get nice window plants by training an Ivy-leaved "Geranium" on a home-made framework of laths, much the same as they use for Musk. The last-named plant is often seen in the windows of country cottages, and is both pretty and sweet.

Marguerites (varieties of *Chrysanthemum frutescens*) are stock

favourites for windows, both indoors and out. Their strong points are their free and persistent blooming and their attractive foliage. They do not, it is true, give us a great range of colours, being either white or yellow; but that is not a serious drawback, as we can get colour in other things. Marguerites come readily from cuttings, thrive in ordinary potting compost, and are easy to keep healthy so long as the leaf-mining maggot can be kept at bay. (See Greenhouse section.)

*Plants in Vases.*—Room gardening assumed a new phase with the trial of peat-moss fibre in china vases for bulbs and other plants. It proved to be entirely successful. Bulbs do particularly well in this substance. It is purchased in a dry state in autumn with the bulbs, is moistened, and is made firm, but not absolutely hard, in the receptacles, which need not be at all expensive. The vases are not put in a dark place like bulbs in glasses, because the bulbs are covered with fibre, and top growth does not push in advance of the roots. In autumn the fibre is hardly likely to get quite dry, but should it do so it ought to be moistened. It is desirable that the store be frost-proof, but the bulbs will endure a little hardship. When they are in full growth water will be required more frequently. Any excess must be got rid of by gently turning the vase on its side, as the vases are not perforated, and there is no drainage. Care should be taken to avoid filling the vases quite full of fibre, as if that were done particles would be constantly falling over and making a mess. If this is guarded against vases will be found perfectly clean.

Bulbs may also be grown successfully in bowls filled with clean pebbles and water. Polyanthus Narcissi do particularly well. They may be treated in the same way as Hyacinths in glasses—that is, put into a dark cupboard for six or eight weeks, and then placed in the window.

Once upon a time Wardian cases were popular for the windows



of rooms, but they are not much in use nowadays. The rise of vase and bowl cultivation has doubtless had a great deal to do with their relegation. Small, separate receptacles, which can be moved from place to place, and put on a dinner-table during meals, are preferred to a large fixture.

### CUT FLOWERS

The use of cut flowers for room decoration spreads from year to year, and it is earnestly to be hoped that it will continue to do so. Ultra-sensitive people raise objections to the cutting of flowers. They "like to see the poor things on the plants." Certainly, we all like to see flowers on the plants; that is what we grow most plants for. But we have got to remember that the constant cutting of flowers helps plants to grow and bloom, and therefore, that the latter are benefited by the practice. If flowers are left on plants they run to seed, and blooming ceases.

The subject of cut flowers is too large a one to be dealt with fully. Adequate treatment would mean a volume. We must be satisfied with a few brief hints:—

(1) Cut all flowers while young and fresh.

(2) Cut them with long stalks, because then they can be arranged lightly.

(3) Do not, as a rule, use many different kinds of flowers in one vase.

(4) Make a practice of arranging flowers with their own foliage.

(5) Cut a short piece off the bottom of the stem every two or three days.

(6) To revive drooping flowers, put them in hot water containing a little salt.

Cut flowers adorn rooms in a delightful way, and exercise a sweetening and refining influence.

WINDOW-BOXES

Reference was made to window-boxes in the Bulb section, and it is unnecessary to repeat the details; but it has to be pointed out that bulbs adorn window-boxes in spring only, and that when they are over provision must be made for the summer display.

In passing, it may be noted that some people prefer to have plants in pots on their window-sills, because of the facility for making changes. There is no real objection to this, but the grower must remember two things: the first, that he must place blocks or a strip of wood along sloping sills to raise the front of the pots and bring them level, otherwise the plants cannot be properly watered; the second, that a support will be required to prevent their being blown off. A framework to fit the window can easily be made, and if it is faced with virgin cork the pots will be hidden.



CAMPANULA ISOPHYLLA ALBA FOR POTS OR BASKETS

A, A, sand at base of cuttings; B, cuttings inserted through sandy surface; C, a suitable cutting—basal shoot; D, plant in flower in pot. It quickly grows to this stage and condition.

In the case of boxes, they must be made to fit the sill, but there is no objection to their overhanging a little in front, provided that there is no fear of overbalancing. There must be a strip at each end, thickened in front, to keep the box clear of the sill, and level. A number of holes should be bored or burnt in the bottom to permit of water escaping. These holes may be covered with pieces of broken flower-pot.

When bulbs are used in window-boxes it is a good plan to associate coloured Primroses with them, as the latter bloom later than most bulbs, and maintain the display. They are beautiful



flowers, and will be at their best from the middle of April to the middle of May.

All the popular, free-flowering plants, such as Zonal and Ivy-leaved Pelargoniums, Fuchsias, Marguerites, Begonias, China Asters, *Campanula isophylla*, and Creeping Jenny will be available for summer bloom. Crowding in a great many kinds is inadvisable, as the plants spoil each other.

The boxes can be cleared in November and planted with bulbs or small conifers.

## THE CARNATION

THE Carnation is a prime favourite with almost every lover of flowers. We may include the Pink with it in a general sense, and when we do so we widen its appeal. It is one of those old, old flowers, love of which has become almost traditional. It could no more be torn out of the lives of the British people than affection for the Union Jack. True, it is not the national flower; that great distinction belongs to the Rose; but it is only in a minor degree that it falls short in its hold on the affection of the public. There are perhaps more Roses than Carnations grown, but for all that there are few gardens worthy of the name in which the Carnation is not represented. And its appeal is a very intimate one; it is not merely admired, but loved. It gets its roots deep down into our hearts.

What is the explanation of the great favour which the Carnation enjoys? It is undoubtedly the union of attractive form and colour with delicious perfume. Our ancestors learned to love the flower because it was at once beautiful and sweet. They did not call it by its present name in the earliest times. It was known to them as the Gilloflower. Of course, more than one plant bore this name. When we escape from the rush and bustle of the modern workaday world—from the hissing of the electric tram, the humming of the printing-press, and the hooting of the motor-car—into the quiet seclusion of the study, and spend a delightful hour with the old poets and gardening writers, we find that



Stock, Wallflower, and Carnation were alike called Gilloflowers. But there were distinctions between the members of this lovely, fragrant trinity. The first was the Stock-gilloflower, the second the Wall-gilloflower, the third *the* Gilloflower. The Carnation, then, was the Queen of the old Gilloflowers. Gillyflower, Gilloflower, or Gilliflower (all three spellings appear) is held to be a corruption of *Caryophyllum*, the clove.

When Chaucer writes of the "*clow gilofre*" he certainly means the clove gilloflower—the Carnation. The lines following his allusion to it—

"And notemuge to put in ale  
Whether it be moist or stale,"

point to its admitted use in the olden days as a spice.

Whence, however, the derivation of the name "Carnation," and whence that of "clove"? The answers to these questions are full of interest, because the two names are shown to react on each other in a remarkable, and yet simple, way, arising directly out of the perfume of the flower. The old writers used the term Clove Gilloflower because the bloom had the odour of the commercial clove—that spice, early childhood memories of which are chequered by the recollection of its use, not only in various agreeable dishes, but also as a supposed remedy for toothache. The clove is the dried flower-bud of the Myrtaceous shrub *Caryophyllus aromaticus*, from the Latin *caryophyllum*, a clove. Now, according to some authorities, the word "carnation" is neither more nor less than a corruption of *caryophyllum*. Another derivation is suggested, however. The ancient Greeks and Romans used the flower for making chaplets, and hence it was called the "coronation flower." The corruption of "coronation" to "carnation" is more obvious than the change from *caryophyllum* to Carnation, although the latter is by no means impossible. Some writers contend that instead of "carnation" being a corruption of "coronation," the reverse holds good—that "carnation" was used

to describe the flower because of its colour, and that it came to be called a "coronation" because lovers used it as a crown when they became engaged to marry. These conflicting views illustrate the difficulty of offering an explanation that is equally satisfactory to all, but one thing is clear through everything, and that is the clove association. It lingers in the botanical name of the Carnation, which is *Dianthus caryophyllus*. The word *Dianthus* means "flower of the gods."

The fact that the Carnation was known to the ancient Greeks and Romans proves it to be a very old plant. Pliny places its earliest habitat in Spain, where he states that it was found in the days of Augustus Cæsar. He tells us that the Spaniards used it as a spice. As we have seen, the old English used it in the same way; hence the name "soppes-in-wine." It is difficult to say when the plant first appeared in Britain. The original plant was flesh-coloured, and according to Gerarde yellow varieties were not introduced until 1580. If that were so they developed very fast, for we find Shakespeare writing of "streaked gilivors" in 1601, and read of Parkinson growing a "complete collection" some thirty years later. But they were not classified into the sections under which we have them, such as Bizarres, Flakes, Selfs, and Picotees, until later days. This was probably done in the eighteenth century, towards the end of which Flakes and Bizarres were grown to as high a state of perfection, according to one famous modern florist, as they are at the present time. In support of his contention, he refers his readers to Plate 39 of the *Botanical Magazine*, where a splendid example of a florist's Carnation is shown. The yellow ground Picotee appeared in the seventeenth century.

In modern days the greatest development among Carnations has been in the Selfs and Fancies. The former are one-coloured flowers; the latter are yellow or white flowers, suffused and otherwise irregularly marked with another colour. They are beautiful classes, both for garden and pot culture, and the same remark



applies to the Picotees, which have a clearly defined line of colour round the edge of the petals. The Bizarres and Flakes are almost exclusively exhibition flowers. The old British florists stipulate for a circular, well-filled flower, with smooth, round petals, the edges of which are uncut. The petals must overlap each other evenly. A class of Sels has developed, however, with cut or serrated edges. As florist's flowers they are imperfect, but the blooms are large, the colours are brilliant, the perfume is powerful, and the plants are valuable for winter blooming in pots, consequently they are in great favour. They are called American Carnations, and may tend to displace the old type of Winter or Tree Carnations, and also the Malmaison class. The latter is very beautiful, but is somewhat difficult to manage, and really needs to be grown in a house to itself to be in perfection.

We will give selections of the various classes:—

<i>Scarlet Bizarres.</i>	<i>Crimson Sels.</i>	<i>White Ground Picotees.</i>
Robert Houlgrave. Admiral Curzon.	Agnes Sorrel. Gil Polo.	Amy Robsart. Brunette. Fortrose. Ganymede. Little Phil. Zerlina.
<i>Pink and Purple Bizarres.</i>	<i>White Sels.</i>	
Wm. Skirving. Sarah Payne.	Trojan. Hildegarde. Mrs. Eric Hambro.	
<i>Crimson Bizarres.</i>	<i>Yellow Sels.</i>	<i>Yellow Ground Picotees.</i>
Rifleman. Master Fred.	Daffodil. Cecilia.	Childe Harold. Gertrude. Gronow. Lucy Glitters. Rabelais. The Pilgrim.
<i>Scarlet Flakes.</i>	<i>Pink and Rose Sels.</i>	
Sportsman. John Wormald.	Lady Hermione. Lady Carrington.	
<i>Purple Flakes.</i>	<i>Scarlet Sels.</i>	<i>Malmaisons.</i>
James Douglas. George Melville.	Barras. Herbert J. Cutbush.	Lady Ulrica. Lord Welby. Mrs. Martin Smith. Mrs. Trelawny. Princess of Wales. Thora.
<i>Rose Flakes.</i>	<i>Yellow Ground Fancies.</i>	
Thalia. Mrs. Rowan.	Amphion. Brodrick. Hidalgo.	

*Trees.*

Deutsche Brant.  
 Duchess Consuelo.  
 Lady Carlisle.  
 Mrs. L. de Rothschild.  
 Uriah Pike.  
 Winter Cheer.

*American.*

Alpine Glow.  
 Beacon.  
 Enchantress.  
 Flamingo.  
 Mrs. Burnett.  
 Mrs. T. W. Lawson.  
 White Enchantress.  
 Winsor.

*Garden Pinks.*

Anne Boleyn.  
 Ernest Ladhams.  
 Her Majesty.  
 Mrs. Sinkins.  
 Modesty.  
 Paddington.

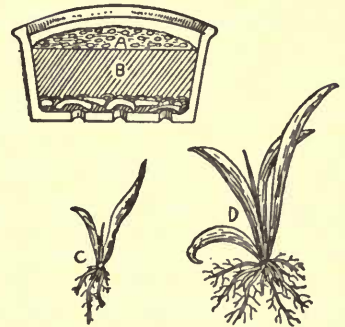
One other section may be alluded to, and that is the Marguerite Carnation, which is treated as an annual by being raised from seed every year. It is bright, pretty, and useful for cutting.

In dealing with the culture of Carnations we may usefully consider them under two heads—garden and indoor.

## GARDEN CARNATIONS

Carnations are beautiful in gardens for beds and borders. Strong plants make very attractive objects, with their tufts of greyish green foliage, large flowers, and brilliant colours.

*Propagation.*—Useful garden material can be raised from seed, by sowing out of doors in early summer, but the flowers will not possess any marked quality. The best method of propagating good named varieties is to “tongue” the young growing shoots about midsummer, and peg them down on a mound of sandy soil. The operation is very simple, and consists of making a longitudinal slit about an inch in length along the stem with a sharp knife, and gently drawing it open, or slipping in a small pebble to keep the surfaces apart. Roots will form on them, and in October the shoot—now a separate plant—may be severed from the parent. It is common to winter the young plants in a frame,

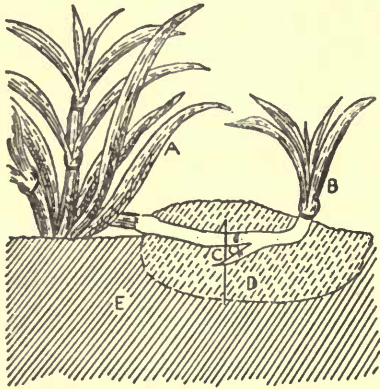


MARGUERITE CARNATIONS FROM SEEDS

A, seeds to be covered; B, compost; C, seedling fit for transplanting; D, young plant fit for potting or planting out.



but some growers prefer to let them take their chance in the open ground. The Carnation is hardy, but damp often kills plants out of doors, especially in wet, heavy soils. Pinks are propagated by means of young shoots pulled out of their sockets.



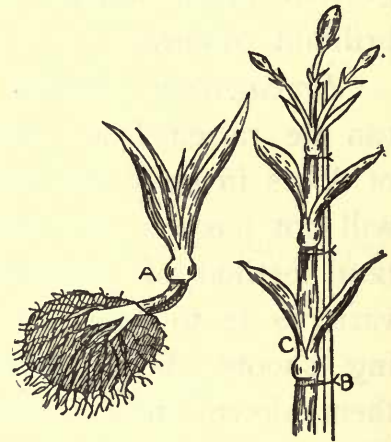
LAYERING CARNATIONS

A, old plant; B, young layer; C shows the cut made with a sharp knife, lip of stem kept open with small pebble; D, special compost; E, border soil.

*Planting.*—The Carnations may be put into the beds or borders from the end of March to June, but April is about the best planting month. If the soil is very poor it ought to be dug two spades deep, and enriched with decayed manure. If stiff and lumpy it should be lightened with road grit, or mortar rubbish. The

plants may be put eighteen inches apart, and pressed firmly into the ground. They will not require stakes in themselves, because the growth is bushy and low, but the flower stems will need support, and it will be wise to get the special stakes which exhibition growers use, such as Sydenham's or Porter's. They are not expensive, and while adequately supporting the stem they allow it to extend freely.

*Disbudding.*—Growers who want a large number of flowers will not disbud to any great extent, if at all; but those who grow for exhibition will find it absolutely necessary to thin the buds severely. They will be found to come in clusters, and these are reduced to the central or crown bud, which develops into a large, symmetrical flower. The splitting of



PLANTING AND SUPPORTING CARNATIONS

A, rooted layer lifted ready for potting or planting in border; B shows where to place the tying material beneath a joint C, when staking is done.

the calyx, which is common in many beautiful varieties, permits the mass of petals which compose the bloom to bulge at one side, and so spoil the shape. It is prevented by slipping on an india-rubber ring. It will be necessary to shade the bed if the flowers are to be kept quite fresh and of good colour, but it may be well to warn readers who contemplate competing at the principal shows that they will find themselves confronted by men whose blooms have been grown in pots under glass. Even the Selfs are generally grown in pots when show quality is aimed at.

*Enemies.*—The Carnation has several enemies, which, among them, cause growers endless trouble and loss. Wireworms and leather-jacket grubs, which will attack most plants, are particularly fond of the roots of Carnations. Inasmuch as these pests are generally abundant in pasture land, it follows that trouble must be expected when turf is taken up in order to make flower-beds. It is a good plan to plant Potatoes on the ground first, as they draw off a large number of grubs. True, they themselves suffer, but unless they are a special variety they are of much less value than Carnations. Another plan is to dress the ground with gas lime, but this must only be done with certain precautions. In the first place, one pound per yard should not be exceeded. In the second, the lime must be allowed to lie on the surface a few weeks before being turned in. In the third place, it is wise to let the ground lie fallow for a few weeks longer, or to crop it with something of no special value, such as Potatoes or Greens. The least that can be done is to use baits among the Carnations. These may consist of pieces of Potato, Carrot, or Mangel-wurzel impaled on sticks, by means of which they can be thrust into the ground. The baits must be withdrawn at frequent intervals, and any grubs found on them destroyed.

Hares and rabbits must be looked upon as very dangerous enemies of Carnations. Rabbits will attack them in preference to almost anything in the garden, and will clear off every Carnation



on the place in a very short time. Needless to say they do not spare the rare and expensive varieties. The Carnation grower who has wild rabbits in his neighbourhood will be wise to wire them out. If he cannot wire the whole garden he must wire that portion of it where his Carnations are. If he were an expert he might snare the rabbits in gins, but wiring out is more reliable. Any ironmonger will supply suitable wire.

What is known as the Carnation maggot is another serious enemy, and one that is likely to be overlooked altogether, because it works insidiously in the heart of the plant. Many a grower loses Carnations and is never able to satisfy himself as to the cause. He suspects wireworms, but cannot find any; he reads of "mould," but sees no trace of it on the leaves. Still the plants go, whole shoots apparently rotting off. The maggot works in the heart of the stems. It comes from a fly named *Hylemyia nigrescens*, which lays eggs on various parts of the plant. If the grower sees a blistered patch on the leaves he should pierce it through and through with a needle, in order to destroy the maggot within. If he observes a shoot become pale and unhealthy he should carefully slit the stem with a sharp knife and search for the maggot. It is most likely to be found in autumn or winter, but may be operating at almost any period.

There are two common fungoid diseases of Carnations, one called rust, and the other mould or spot. The latter, *Heterosporium echinulatum*, is a most deadly disease. It is generally recognisable by a series of patches formed of irregular rings, which spread rapidly. They often appear in autumn, and get worse throughout the winter, so that by the time the spring comes the plants are dead. The disease attacks plants both out of doors and under glass, but the pot plants generally suffer the most severely, as they are in a closer, damper atmosphere, which certainly favours the spread. Every affected leaf should be picked off at once, in the hope of checking the attack. At the same time, the plants



PETUNIAS  
By A. Fairfax Muckley



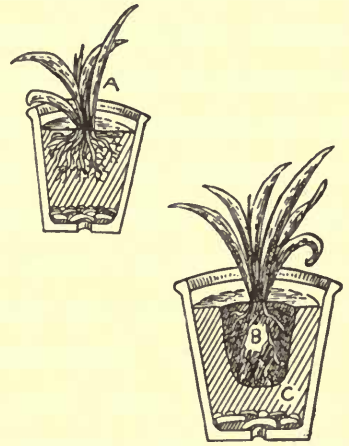


may be sprayed with sulphide of potassium (liver of sulphur) dissolved in water at the rate of one ounce to three gallons. If the plants are to be treated they should be carried out of the house, as the solution discolours paint.

### CARNATIONS IN POTS

Exhibition Carnations are generally grown in pairs in 7 or 8 inch pots, but there is no reason why they should not be grown singly in smaller pots, such as 5-inch, if more convenient. Assuming that they are struck from layers in summer, they will be put into small pots in autumn, wintered in a frame or cool house, and repotted when they start growing in spring. Three parts of fibrous loam, one each of leaf-mould and decayed manure, and about one-tenth of coarse sand will suit them admirably. They must receive abundance of air, and no attempt should be made to push them on in heat. If they are coddled up in a close, moist, warm atmosphere they will fall victims to mould. With careful watering, and abundance of air, the plants will make steady progress.

In due course flower-stems will begin to rise. There may be more than one to each plant, and if there are they should be immediately reduced to one, if fine flowers are required. Further, disbudding will be needed, and until the grower has learned from experience how to handle the different varieties, he will be wise to allow each shoot to carry three flowers—the central one, and two others on lateral shoots below. Disbudding is often carried much further than this—even to the extent of having only one



POTTING CARNATIONS

A shows a seedling in a small pot;  
B, the young plant repotted in  
compost C.



flower on each plant; but such severe restriction, in the case of the strong Selfs, is best left to thoroughly experienced growers, who know what varieties it may be practised on, as if disbudding is carried too far it is apt to lead to coarse, ugly flowers. Staking and shading must have due attention in their season.

*Malmaisons.*—These are not a suitable class for amateurs who have only one house, as the plants do not take kindly to association with a mixed collection of plants. They are generally propagated by layers after they have flowered, and for this purpose are planted out in frames. When rooted the young plants may be placed singly in 4-inch pots, and grown through the summer in a frame, or on a bed of ashes in a sheltered part of the garden. In September they may be transferred to 6 or 7 inch pots, and in October put in the house. They must be watered carefully throughout the winter, kept as cool as possible, and given abundance of air at every opportunity. Thus treated, they will flower in late spring and summer.

*Tree or Perpetual Carnations.*—These are winter bloomers with those who have a warm greenhouse, and consequently they form a very valuable class. They are free-flowering, bright in colour, and fragrant. They are propagated by cuttings, and it is desirable to strike these in bottom heat in winter, because then the young plants will flower the following winter. If the cuttings are not struck before spring, and that without bottom heat, they may not be strong enough to bloom before the second winter. The cuttings should consist of side shoots, which may be inserted round the side of a pot, and transferred singly to 3-inch when rooted. From these they may be transplanted to 5 or 6 inch pots when the smaller ones are filled with roots. In the spring they may have a frame, but they will be safe enough out of doors in summer, if stood on a bed of ashes. Before they are six inches high the top should be pinched out to cause side shoots to form, and about the end of June they may be

stopped again. This will insure compact, free-flowering, bushy plants. The same compost as advised for Selfs will do.

*American Carnations.*—These, like the Trees, are winter and spring bloomers. They are, indeed, a section of Trees, but in some respects they are superior. They have larger flowers, and much longer stems. The latter is a strong point in their favour, because it enables them to be used in decoration without wiring. They may be propagated from cuttings, potted, and treated generally like the Trees, but the writers prefer the American plan of forming a bed for them in the house, and planting them out. It saves the trouble and expense of potting. They fix strings across the bed, about a foot above the surface of the soil, to tie the flower-stems to. With an intermediate house temperature, say a minimum of fifty to sixty degrees in winter, blooms will be forthcoming in a long succession during winter and spring. It is possible to get them at Christmas.



## THE DAHLIA

FEW garden flowers have a more loyal following than the Dahlia. Even in those days, apparently remote, yet in reality quite recent, when Cactus and single varieties were practically unknown, and when such epithets as "stiff" and "lumpy" could be applied to Dahlias with a certain measure of justice, they had a band of supporters which never wavered in its fealty. When the Rose-lover criticised the Dahlia as a flower lacking in grace, and the Carnation enthusiast commented on its want of perfume, the faithful had to maintain a discreet silence, but they gave their favourite flower the same unswerving allegiance that they had always done.

What is the secret of the hold on its admirers which the Dahlia seems capable of exercising? When we find a human being who is able to seize, and retain, the admiration of a large number of his fellow-creatures, we expect to find something in him at once uncommon and worthy. Making due allowance for the fact that the Dahlia had established itself in this country before some of our modern favourites fairly began their course, and thus secured an advantage of no light character among a people remarkable for their tenacious conservatism, it is only fair for its critics to acknowledge that it would never have done this if it had not real garden merit. Well, we can say several things in the Dahlia's favour. In the first place, it is a plant of very free growth. There is no namby-pambyism about it. It does not take half the summer to prepare for growing and the other half to prepare for flowering. Provided that it is raised sturdily and given good soil, it buckles to its task at once, and

goes ahead with the most refreshing vigour. This is one thing about the Dahlia which growers of it like. They derive an immediate reflex glory from it. They see it extending healthily from day to day, and their hearts warm to it. They are able to point the bed of Dahlias out to their friends with pride and satisfaction. There is something to see about it. A collection of Dahlias is like a family of sturdy, ruddy children. It stimulates the instincts of parenthood.

A second strong point about the Dahlia is its great array of bright and cheerful colours. Robust in everything, it is not least so in its tints. Here is a vivid scarlet, here a brilliant carmine or a rich crimson, here again a pure white, a clear yellow, a delicate blush, a bright rose. Blue we do not find, but maroon we do. All are not Sells. Some are bicolors, and there is a section with flaked flowers, the markings of which are both singular and pleasing.

Already we see that the Dahlia is quite a John Bull type of plant, with its sturdy vigour, its bluff directness, its pushful pertinacity. But there are more things than these in its favour. Its flowers fall naturally into harmonious forms. They mould themselves on true lines. The florets unfold, not in a confused mass, but in an ordered series, one overlapping the other, so that the finished flower has perfect contour.

It was the large size, admirable symmetry, and clear colouring of the Dahlia which led to its acceptance as a "florist's flower." A coterie of growers specialised it. They formed a Dahlia society. It was useless, after that, for the critics of the Dahlia (and they have always been both persistent and numerous) to attempt to overthrow it. "Lumpy" it might be; scentless it certainly was. No matter, it was enthroned as a "florist's flower"; and although it might, nay must, pass through vicissitudes, it was as stable as the dynasty itself.

The specialists unfurled their flag over the double Dahlia,



which they divided into two sections, respectively "Show" and "Fancy." Self-coloured blooms, or those with the colour deepening along the edge of the flower, were Shows, and flaked blooms were Fancies. The latter term was a better one than the former, for, as a matter of fact, both sections have a recognised exhibition standing of nearly equal value; and both therefore, in the practical sense, are "show" flowers. The Dahlia stalwarts should have called their one-coloured flowers Selves, and their parti-coloured flowers Fancies; then the position would have been a little clearer. But they did not, and it is too late to speak of a change now.

When the Cactus and single Dahlias were improved into great classes, the old school could, an it had cared to do so, have scored very heavily over Dahlia detractors. "Lumpy! devoid of grace!" it could have cried in triumph. "What flowers can you find more full of elegance than these?" But it did nothing of the kind. It displayed a most charming generosity. Or was it (as some have put it) that it was itself more than a little cold towards the new-comers, and disposed to regard them as interlopers? Was it a little purblind, and did it fail in prophetic vision to the extent of seeing no future for the fresh classes? (We only speak of the single Dahlia as "fresh" in the florist's sense; botanically it is an old flower.) If the latter was the case, the Dahlia-lover of the Old Guard certainly missed an opportunity, and displayed great want of foresight. The Dahlia became a new flower from the time that cross-fertilisers took the Cactus and single-flowered types in hand and made great sections of them. It was no longer a specialist's flower and nothing else. It was no longer a mere show flower. It became a great flower-garden plant for the million.

It is likely that but for the improvement in these two beautiful sections the Dahlia would have declined in favour. Its old supporters would have clung to it as long as they lived, but as they died out gaps would have been left in the ranks, which new

adherents were not there to fill up. Thus each succeeding year would have seen a smaller army. We take this view because we note the advance of garden Roses, Sweet Peas, Chrysanthemums and Michaelmas Daisies, the rivalry of which with Dahlias would have grown keener and keener every year. As it is, the Dahlia has taken a fresh lease of public favour. There are more growers for show than ever there were. True, the exhibitions have changed their character somewhat. The classes for Show and Fancy flowers are not so important as they used to be, while those for Cactus varieties have grown greatly in interest; but shows are at least as big as they were in the old days, and they are certainly more varied and beautiful. There has been a tenfold increase in the number of people who cultivate Dahlias as garden plants. People grow Cactus Dahlias who never would have grown a Show variety. And thus recent developments have strengthened the Dahlia enormously. It ranks well among the first half-dozen plants of the flower garden—a state of affairs that could not have been expected in the last quarter of the nineteenth century.

The Dahlia came to us from Mexico in 1789, so that it is quite an old plant in British gardens. Its name was chosen as a compliment to a Swedish botanist named Dahl, but growers did not pay him the additional compliment of pronouncing his name correctly, and so confusion threatened to grow up with an existing genus called Dalea, doubtless in honour of a person named Dale. Dahl—Dale; Dahl-ia—Dale-a. Surely the names suggest different pronunciations? But no. Dahl-ia was mispronounced as though it were Dale-a. An attempt was made to change the name, and it was called Georgina. According to some authorities, this was due to an error on the part of a German botanist. Others attribute it to the fact that purists were irritated about the mispronunciation. In the end Dahlia was adhered to in this country, inaccurate pronunciation and all. That no real trouble arose may be attributed to the fact that the genus Dalea



is an obscure and unimportant one; but the sticklers were never quite satisfied, and to this day one meets with an occasional person who clings (somewhat pedantically) to the true pronunciation.

The original species is called by botanists *variabilis*, on account of the variability of the colour, which was generally either crimson or purple. But this was not the first name given to it. In the first place, it was called *superflua*, on account of the central florets differing from the outer ones. At different parts of its career the plant enjoyed other specific names—*crocata*, *frustranea*, and *pinnata*—so that altogether the Dahlia has had a somewhat troubled time with that much-sinning sect, the plant-namers. A philosopher once remarked that a man of many aliases should be avoided as a dangerous character, but a plant with several names should be sought after, as it was probably something both uncommon and desirable. This was certainly true of the Dahlia. Other species were introduced. A notable one was *coccinea*, with scarlet flowers, which also came from Mexico. As in the case of the sister species, several names were given to it, such as *bidentifolia*, *Cervantesii*, and *frustranea*. That of *coccinea* is simply in allusion to the colour. We use the word “notable” in connection with this species, because, with *variabilis*, it is certainly a parent of our modern garden Dahlias. *Merckii* (otherwise *glabrata*) is remarkable for the same reason. This has lilac (sometimes white) and yellow flowers. It came from Mexico in 1839. These three species were doubtless crossed, and the progeny intercrossed. As in the case of other important garden plants, a great deal of the work of fertilisation was done by trade florists for commercial purposes, and this class is notoriously prone to keep its operations secret. For this reason it is doubtful if there is any record of real value dealing with the course of crossing which resulted in the production of the beautiful Dahlias which we possess to-day.

Another very important species must have special mention, and that is *Juarezii*, which came from Mexico in 1872. The

importance of this species, which bears scarlet flowers, lies in the fact that it was the parent of our great modern class of Cactus Dahlias. Several years passed before the public took much notice of it, and a great many more before the florists secured new varieties of sufficient merit and distinctiveness as to command the earnest attention of the flower-loving public; consequently, although a considerable time has elapsed since the first Cactus Dahlia appeared, it is, as a class, quite modern.

Opinions may differ as to whether the single or the Cactus section did the more towards making the Dahlia the popular flower which it is now. Certainly the single, in its improved forms, became extremely popular in the last quarter of the nineteenth century, and did a great deal to spread a love for Dahlias before the Cactus class had developed. But there is no comparison between the two now. The Cactus has far outstripped the single, as it has every other class. It has a great advantage over the single in the more lasting quality of its flowers. The single is undeniably beautiful and graceful, but its value both for garden decoration and cutting is marred by the comparatively short life of the flowers.

The Pompon, Bouquet, or Lilliputian class is one of great value, and must not be overlooked, especially by those who are chiefly concerned with the Dahlia as a flower-garden plant. It is distinguished by great freedom of blooming, considerable duration, and strong flower-stems, which lift the beautiful little blossoms well above the leaves, and so insure their being well displayed. Herein it is unquestionably superior to the Cactus class. Many of the most beautiful varieties in the latter section have short, thin, weak flower-stems, which are incapable of lifting the blooms well up above the leaves, and consequently they are not so effective on their plants in the garden as they are on boards at the shows. The Pompon is really a Show Dahlia in miniature—that is to say, it has the form and colour of the Show, but is much smaller



in size. A Pompon is quite big enough if as large as a golf-ball; it is too big if larger than a tennis-ball. Great size is a defect, not a merit. The flowers of the best Pompons are borne in clusters. The colours are varied and brilliant.

There is a class of dwarf Dahlias in existence called the Tom Thumb. It appeared somewhere about the year 1890, perhaps a little earlier. The writers very well remember the interest which it aroused on its introduction. The plants only grew about a foot high, but the flowers were similar to those of normal plants. They were mostly, if not entirely, single varieties. There seemed to be an opening for such a class, especially for very small gardens, but it did not prove to be very successful, principally owing to the somewhat puny growth and few flowers. Plants can still be got.

The early years of the twentieth century saw a class of Dahlias originate in Holland which was called the Paeony-flowered. The varieties are remarkable for the huge size and brilliant colours of the flowers. They are borne on long, strong stems, which display them to the utmost advantage. Lovers of refined flowers look askance at these huge, vivid blooms, and stigmatise them as coarse. Owners of large gardens who want brilliant breaks of colour seem inclined to take to them. At the time of writing the popularity of the Paeony Dahlias is rather a matter of promise than of fact. So far only a few varieties have appeared, but if there are signs of a brisk demand more will come, and that quickly, for trade florists are wonderfully quick in seeing and meeting a demand. Strange as it appears to the layman, they seem able to multiply the varieties almost as quickly as cloth-makers can evolve new patterns, or lace-makers produce new designs.

The above do not exhaust the number of classes, although they are the most important. There are also the Pompon Cactus, the single Cactus, the Star, and the Decorative Dahlias. These are

all small in numbers, but they have their interest, and command a certain number of admirers.

As we have referred at some length to the various sections, we may complete the subject by giving selections of varieties in each, before proceeding to discuss culture. To some extent such selections can only have a passing value, inasmuch as new varieties are constantly appearing, and so far as exhibition growers are concerned it is very important to keep in touch with the novelties. Still, hints as to choice of sorts will be of service to two large classes—those who grow for garden decoration, and those who are beginning Dahlia cultivation, for whatever purpose. It is not nearly so important for garden growers to buy novelties as it is for exhibitors to do so; indeed, the former class will be wise to make changes with caution. When it has found varieties which are of real garden worth—sorts of good habit as well as of beauty of bloom—it must keep to them until it has real proof that the latest sorts have more than mere perfection of flower or freshness of colour to recommend them; it must not cast them out in favour of a costly novelty on no better ground than that the latter looks nice on a show board. Many make this mistake. How, it may be asked, can it acquire knowledge without growing the sorts? Well, lovers of Dahlias generally get into touch with each other somehow. Experiences are exchanged. Information is disseminated through the National Dahlia Society, and through the horticultural press. New Dahlias are seen at the different nurseries, and notes can be taken of their behaviour in these places.

Speaking broadly, the amateur must not expect too much of Show and Fancy Dahlias as garden plants pure and simple. He should expect to get his best garden effects from the Cactus, Pompon, single, and Paeony-flowered sections. There are, however, some large double Dahlias which are good from the garden as well as the exhibition point of view, and those shall have places in our lists.



## SHOW DAHLIAS

A good Show Dahlia must be quite round, exhibit no central ball or "eye," and have rolled-in (quilled) florets.

*Crimson King*, crimson.

*David Johnson*, salmon, rose shading.

*Ethel Britton*, white and purple.

*John Walker*, white.

*Merlin*, orange.

*Mrs. Gladstone*, blush.

*Mrs. Jefford*, yellow.

*Mrs. Slack*, blush and purple.

*Perfection*, buff.

*Queen of the Belgians*, cream.

*R. T. Rawlings*, yellow.

*Spitfire*, scarlet.

## FANCY DAHLIAS

A good Fancy Dahlia must, like the Show, be round, eyeless, and have quilled florets. It always has two colours, generally one striped or flaked through the other, but sometimes with a clear white tip, as in the well-known variety Peacock.

*Comedian*, orange and crimson.

*Dorothy*, maroon and fawn.

*Gaiety*, yellow and red, white tips.

*Goldsmith*, yellow and crimson.

*Matthew Campbell*, buff and crimson.

*Mrs. N. Halls*, scarlet, white tip.

*Mrs. Saunders*, yellow and white.

*Novelty*, rose, purple flakes.

*Peacock*, maroon, white tip.

*Prince Henry*, lilac, purple stripes.

## CACTUS DAHLIAS

A good Cactus Dahlia must have a round flower, but with the tips of the florets apart, owing to their coming to a point. Each must be tubular, not quilled. The flower must be full and high in the centre, not flat.

*Alpha*, blush, flaked purple.

*Amos Perry*, crimson.

*Britannia*, salmon pink.

*Effective*, amber.

*Etna*, reddish lilac.

*Eva*, white.

*Florodora*, crimson.

*H. F. Robertson*, yellow.

*Mrs. H. L. Brousson*, salmon.

*Pearl*, pink, white tips.

*Reggie*, maroon.

*Spitfire*, scarlet.



POMPON DAHLIAS

A good Pompon Dahlia must have small, round flowers, with quilled florets, and show no eye.

*Bacchus*, crimson.  
*Buttercup*, yellow.  
*Guiding Star*, white.  
*Jessica*, amber, red edge.  
*Nerissa*, rose, silver edge.

*Phoebe*, golden orange.  
*Spitfire*, scarlet.  
*Sunny Daybreak*, apricot.  
*Tommy Keith*, red, white tips.

SINGLE DAHLIAS

A good single Dahlia must have a circular flower of eight broad florets, each rounded, not pointed, at the extremity, and all slightly overlapping each other.

*Beauty's Eye*, mauve, crimson ring.  
*Columbine*, rose, orange shading.  
*Formosa*, crimson, yellow centre.  
*Leslie Seale*, lilac.

*Miss Roberts*, yellow.  
*Polly Eccles*, fawn, red centre.  
*The Bride*, white.

POMPON CACTUS DAHLIAS

*Coronation*, vivid scarlet.  
*Little Dolly*, deep pink, shaded mauve.  
*Modesty*, flesh.

*Peace*, white.  
*Titus*, yellow.  
*Tomtit*, rosy pink.

SINGLE CACTUS

These have twisted, incurved florets, and are very quaint.

*Althea*, crimson.  
*Brenda*, yellow.

*Ivanhoe*, rose.  
*Jeanie Deans*, orange.

DECORATIVE DAHLIAS

These are flatter than typical show flowers, but the florets are too round for them to be accepted in the Cactus section, with which some of them were originally identified.

*Grand Duke Alexis*, white. | *Glare of the Garden*, scarlet. | *Spotless Queen*, white.



## PAEONY-FLOWERED DAHLIAS

Large, loose flowers, abundantly produced.

*Baronne de Grancy*, white.  
*Dr. Van Gorkum*, blush.

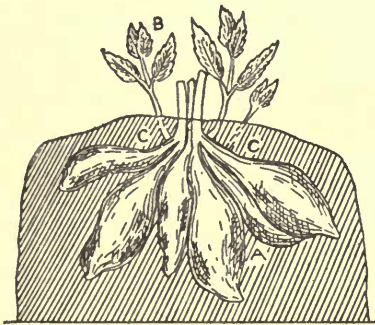
*Germania*, crimson.  
*Glory of Baarn*, rose.

## STAR DAHLIAS

Pretty, loose, freely borne flowers. The class is good for garden decoration.

*Jupiter*, white, yellow edge. | *Mars*, white, scarlet edge. | *Saturn*, white, edged maroon.

Naturally, the effectiveness of the foregoing varieties as garden plants will depend in great part on the treatment to which they are subjected. A little thinning of both growth and buds will often make for improvement. We will now consider the various points of culture.



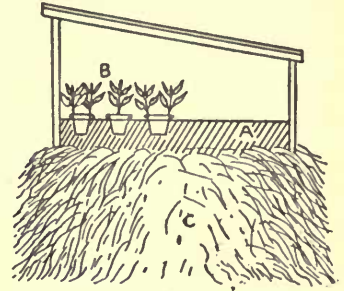
PROPAGATING DAHLIAS

A, old tubers commencing to grow; B, young growths; C, C, good compost in which the tubers are started.

*Propagation.*—The Dahlia is a tuber-producing plant. When a Dahlia which was planted in June, and which developed into a large, healthy plant in the summer, is lifted in autumn, it is found to have formed a cluster of what the beginner is at first disposed

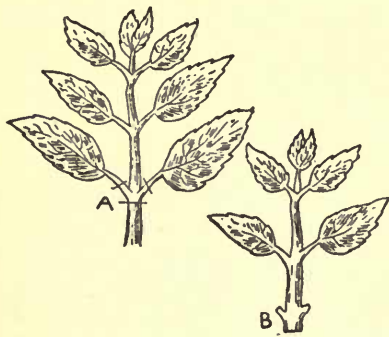
to regard as peculiarly formed roots, but which examination shows to be thick, fleshy growths, with roots proper attached to them. These growths are several inches long, range from an inch to two inches thick, and are attenuated at the apex, where they are attached in a cluster to the lower part of the stem of the plant. They are, in effect, tubers, and are capable of pushing stems and roots. For many years the propagation of Dahlias was conducted almost exclusively by division, each component of the

cluster of tubers being grown as a separate plant. But a Belgian florist discovered that if the "stools" were placed in heat in spring buds would break from the neck, at the point where the tubers were attached, and that if these were allowed to develop into shoots about three inches long, and then removed as cuttings, strong plants could be made of them in a few weeks. The plan speedily became general, as a given variety could be increased much more extensively by this than the old means. When the young shoot is removed it is not advisable to take a portion of the old growth with it, as that would prevent other shoots from following. The cuttings may be inserted singly in sandy soil in small pots, and put in bottom heat if that is available, otherwise in a greenhouse or frame. Those who have no glass may propagate by the slower method of dividing and planting the tubers. Dahlias may be raised from seed, and flowered the first year; singles are not infrequently propagated in that way, but it will not keep named varieties true to colour.



DAHILIA CUTTINGS IN POTS IN A HOTBED

A, soil and cocoa-nut fibre; B, pots containing cuttings plunged; C, hotbed.



DAHILIA CUTTINGS

A shows a cutting being prepared for insertion; B shows the cutting ready for insertion.

*Soil.*—It is well understood that it is useless to grow Dahlias in poor, shallow soil—that is, if the best results are expected. One must have rich, deeply cultivated land. The objection

may be urged against this that it induces the superabundant growth which, in the Cactus varieties particularly, tends to the flowers becoming half hidden; but one must proceed very warily in attempting to reduce growth by moderate cultivation—it is so easy to get to the other extreme. On the whole, it is best to



make sure of a healthy, vigorous plant by digging the soil two or three spades deep, and working in a dressing of decayed manure.

The Dahlia loves plenty of good food, and it loves moisture. A heavy soil will suit it better than a light one.



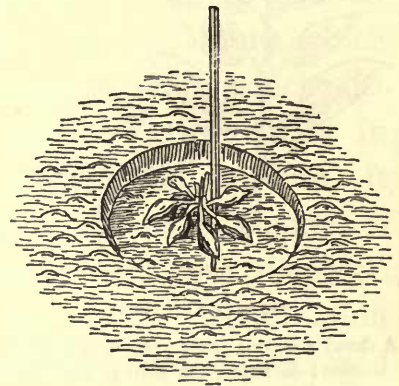
DAHLIA CUTTINGS INSERTED

A shows a cutting inserted singly in a small pot; B shows how to insert three or more in large pots, *i.e.* 6-inch ones.

*Planting.*—In mild districts Dahlias may be planted early in May, but they are tender, and no risks must be run. If the young plants are growing healthfully in their pots, and are fully ventilated throughout the spring, they will take no harm until June, but it is advisable to plant them at the beginning of that month, or they may become pot-bound. If the grower has good plants and has prepared his ground liberally, he should

anticipate vigorous growth and allow plenty of room. Six feet from plant to plant will not be too much. At the same time that he puts them in he should insert supports in the form of stout stakes standing a clear four feet out of the ground. These look rather obtrusive at first, but they cannot very well be put in at a later stage without injuring the roots. The soil should be slightly basined around the stem, not mounded. In the one case, what liquid is supplied is sure to get in; in the other, part of it may run away.

*Training.*—While vigour is desirable on the ground that it promises free flowering and fine blooms, some restriction may be necessary. Those whose object is a limited number of fine flowers will be wise to reduce the main



PLANTING DAHLIAS

How to plant old tubers and fix stakes before replacing the soil.



NASTURTIUMS  
By A. Fairfax Muckley



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stems to four in the case of the Show, Fancy, and Cactus varieties. Singles and Pompons should be allowed more freedom. The side branches may be drawn a little away from the central shoot, and given short stakes of their own. The advantage of this plan is that it effectually prevents overcrowding, and insures the development and display of the flowers. Staking and tying must be thorough, or the first gale may work havoc.

*Disbudding.*—Those who want exhibition blooms must reduce the buds to one—the central or crown—when two or more come together, as is often the case. Side-shoots with flower-buds will probably break from the stems, but these must be pinched out at once. It will be understood that severe disbudding is no more desirable than thinning of shoots in the case of the Pompons, as it will have the effect of causing them to produce large flowers, and these are not wanted. It does not follow that the first buds which show should be kept for exhibition; they may come too early. This is a matter upon which it is very difficult to advise the beginner, because the dates of shows differ, and so does the rate of progression of the buds, the latter being affected by weather and local circumstances. It is well to have more than one plant of each variety, and to have buds in various stages.

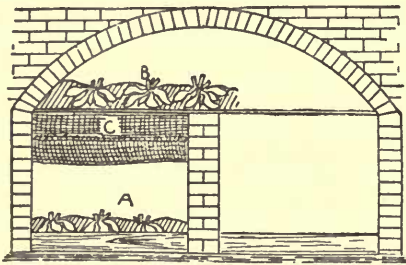
*Slugs and Earwigs.*—It is hard to say which is the worse of these two pests. The former is troublesome in early summer, when the plants are young; the latter later on, when they have developed and the buds have formed. Slugs may be kept away by the use of lime, either scattered round the plants in a dry state, or watered on at night. Or they may be trapped with heaps of brewer's grains. Earwigs principally feed at night, and hide by day; hence the plan of inverting small flower-pots, with a little hay stuffed in to form a nest, on the top of the stakes, and examining them daily.

*Protection for Show Flowers.*—The last two or three weeks before a show constitute a critical time in the career of exhibition



Dahlias. Not only is it necessary to take great care that earwigs do not attack the expanding flowers, but the blooms must be protected from the weather. Fierce sun may hurry the flowers on too fast, and affect their colours. Special shades are made, and the grower should inquire about them from the florist from whom he purchases his plants. If the nurseryman does not sell them himself, he will be able to advise what kind to get, and where to get them.

*Dahlias in Autumn.*—In a cool, mild, moist autumn the Dahlias may remain in beauty until November, but the first sharp frost that catches them will blacken the foliage and stop the growth.



STORING DAHLIAS

A, B, stools stored under stages or arches;  
C, mats suspended for protection.

When this happens it is useless to retain them, as they will never recover, but will die quite away. In view of the fact that they are unsightly in their tarnished state, the sooner they are cut down the better. The stem may be severed just above the ground, and the top growth cleared away. Some growers do no

more than this, and let the roots lie in the ground throughout the winter. No harm will follow if the soil is warm and friable, but in cold, clay, damp soils the tubers may decay. It is decidedly safer to lift them, and after letting them stand upside down on their stumps for a day or two, in order to facilitate the escape of moisture, to store them. They pass the winter best in a dry, frost-proof place. If increase is not desired, and nothing but garden decoration is thought of, the stools may be replanted intact in spring, and with a certain amount of growth-thinning they will give fairly satisfactory results; moreover, they will flower early, if that is considered an advantage. But those who aim at securing the strongest plants and the best flowers will raise fresh plants from cuttings annually in the way previously advised.

## SWEET PEAS

EVERYBODY loves the gay, the fragrant Sweet Pea; and a considerable number specialise it, as other people do Roses and Chrysanthemums.

It is not surprising that the plant should enjoy great favour, because it has very real merits. It is a vigorous grower, is hardy, thrives on most soils and in most districts, is fairly free from serious enemies, is readily raised from seed, is inexpensive, is suitable for indoor and flower-garden culture as well as for room decoration, will thrive in town and suburban gardens, remains long in beauty, and has beautiful flowers with a wide range of colours, exhaling a delicious perfume.

There are few plants of which as much as this could be said. Some have flowers of rare beauty and fragrance, but are difficult to grow, or expensive, or so subject to the attacks of insects and fungi as to be almost "more bother than they are worth."

The Sweet Pea, *Lathyrus odoratus* of botanists, is a comparatively old plant, having been introduced into Great Britain upwards of two hundred years ago. We have not space to trace its history and progress step by step, nor would such a course be quite germane to this work. Those who have so deep an interest in the flower as to be desirous of making themselves acquainted with every detail of its career may be advised to study the publications of the National Sweet Pea Society, a body which has disseminated much valuable information about the Sweet Pea.

We may say, however, that the development of the flower went on very slowly for upwards of one hundred and fifty years. New varieties were introduced at long intervals; indeed, there is no



parallel case, among popular modern flowers, to the tardy development of the Sweet Pea.

There is a distinct physiological reason for this. Plants have different sexual systems. The majority have both sexes united in one flower, and the organs of fertilisation are mature when the flower is expanded, thus affording scope for cross-fertilisation by insect agency, bees and other insects passing from flower to flower, and conveying pollen on their bodies from the anthers of one to the stigma of another. The Sweet Pea belongs to this majority, but the organs are mature while it is yet in the bud stage, and before it expands, with the result that self-fertilisation is inevitable.

It is because the Sweet Pea had this peculiarity (and the fact is certainly uncommon) that varieties multiplied very slowly. Had the flower been of the ordinary class it is quite certain that new varieties would have come more quickly, because cross-fertilisation through external agency would have come into play, with its usual far-reaching effects.

Much has been written respecting the possibilities of the Sweet Pea being cross-fertilised by means of insects. It is fully recognised that if cross-fertilisation is to take place at all it must be through the action of some insect which has learned how to penetrate the defences of the flower, or by wind conveying pollen to exposed organs. Observers have recorded the visits of bees to undeveloped blossoms, and of their getting access through the "keel" (the sac formed by the infolding of the lower petal). But there is no certainty that the flower had not "selfed" (*i.e.* become self-fertilised) beforehand: probably it had. Again, growers of Sweet Peas are quite familiar with a small black beetle, about  $\frac{1}{16}$  inch long, which crawls about the flowers, and probably gets into the buds. It is possible that this little insect could convey pollen from one flower to another; but even if it did, there is the probability that self-fertilisation had taken place before the transference of pollen had an opportunity of exerting any influence.

The fact that "selfing" takes place at such an early stage in the development of the flower should teach those who wish to obtain new varieties by transferring pollen from one flower to another themselves that they must be on the alert directly the plant forms buds. If a flower is emasculated (that is, deprived of its petals and reduced to its central organs) and the anthers are removed before the pollen is ripe, selfing cannot take place. And if then pollen is conveyed from another bud when it is ripe, and placed on the stigma of the emasculated bud when it has become viscid, cross-fertilisation will probably take place. The seed that results when the flower has become a pod and the pod has matured, may yield plants that produce flowers having the characters of both parents.

The modern history of the Sweet Pea began in 1870, when a private gardener of Scottish extraction, named Henry Eckford, who had a taste for crossing flowers, selected the Sweet Pea as one on which to operate. His successes were numerous. In a few years he had added a considerable number of beautiful novelties to the existing list of varieties, and his work went on until the flower was developed, alike in size and diversity of colour, into one of the most remarkable of all our popular garden favourites.

Mr. Eckford's successes set others at work, and novelties poured in from various sources. The colours had been so multiplied and enriched, indeed, and the size and substance of the flowers so greatly increased, that it seemed as though finality had almost been reached. However, in 1901 a startling break appeared. The Sweet Pea may be said to consist of three parts—an upright back petal, called the "standard"; two lower side petals springing from the base, called the "wings"; and the "keel" aforementioned. The standard is the most conspicuous part of the flower, and on its quality depends in a great measure the merit of the whole flower. Now, this large upright petal was a smooth, even structure. It



may or may not have had a notch at the upper central part of the flower; in either case it was smooth. The 1901 novelty departed from this smooth outline, and was deeply waved or frilled. The variation was not only unique, but extremely beautiful, and experts saw at once that an entirely fresh charm had been added to the Sweet Pea.

The newcomer appeared in the garden of Earl Spencer, at Althorp Park, Northampton, and was called by the head gardener, Silas Cole, under whose care it developed, "Countess Spencer." In colour it was a soft pink—a most pleasing shade, equally attractive under natural and artificial light.

Almost simultaneously a somewhat similar break occurred in a market garden near Cambridge, and was called by the owner, W. J. Unwin, "Gladys Unwin." It was not so fine a flower as Countess Spencer, and the colour was much paler.

Two great points of interest arose respecting these novelties: (1) Would the wavy character persist? (2) Was it the result of cross-fertilisation, or a freak of nature—a "sport"? As regards the first, it has to be recorded with sorrow that Countess Spencer proved to be fickle. The variety did not revert wholly, or even mainly, to the plain standard, but it threw different flowers, some plain, others frilled. In the florist's phrase, it was "unfixed," that is, the new character was not a definite and unalterable feature. New varieties raised by crossing Countess Spencer were also unfixed. On the other hand, Gladys Unwin and its offspring remained true.

With respect to the origin of Countess Spencer and Gladys Unwin, various statements and hypotheses have appeared. It has been definitely stated that the former resulted from the artificial pollination of certain varieties, one of which was the old, plain standard pink *Prima Donna*; and that Gladys Unwin came without any such intervention on the part of man in a row of *Prima Donna*. Both, admittedly, came through the medium of the variety

last named; and it is perhaps the only thing that we can feel quite certain about.

How can a natural crossing in a Sweet Pea have occurred, it may be asked, since we have seen that the flower protects itself against cross-fertilisation by the early maturity of its organs, and by its structure? Well, one or two buds may have been malformed, and permitted a bee to gain access to their interior before they had become selfed. Be that as it may, we now have a large number of colours with the waved or Spencer form, some of which come quite true, while others are still unfixed.

The frilled Sweet Pea may be described as the modern type, and with it came increased size. The best varieties of the present day come with four large flowers on each stem.

The range of colours is great, but not quite complete. We have blues of various shades, reds of different tints, whites, striped, veined, and splashed flowers, Picotee-edged forms, bicolors, and so on; but we still lack a rich yellow. Curiously enough, the nearest approach to real yellow has not come in the self or one-colour varieties, but in those in which the yellow exists only as a groundwork. However, the fact that we can get near it at all is encouraging, and there is much ground for hope that the yellow, which has baffled raisers for so long, will eventually come, and in a deep, rich form. It has to be remembered that raisers were at work a great many years before they developed a true scarlet. There are now several of this brilliant tint.

In dealing with the culture of the Sweet Pea we may consider by turns the ordinary amateur, who merely wants to have a bright display of flowers in his garden for a few weeks in summer, and the specialist, who wants to have flowers continuously for several months, and to produce them in the highest state. Both classes have to be reminded that the plant is a hardy annual—that is, it grows from seed out of doors, blooms, ripens its seeds, and dies within a year. To be strictly in touch with facts we must state



that culture has gone a little beyond this, and by raising plants under glass in September, growing them under glass throughout the winter, planting them out in rich soil in spring, growing them in a moist climate and constantly cutting the flowers before they had time to ripen seeds, has kept the plants growing and flowering for fourteen months. Further, it is possible to propagate Sweet Peas by cuttings—a method of increase which can be practised with very few annuals. Still, a hardy annual the plant is.

Dealing first with the seed, this ripens on the plants in summer, earlier or later according to the time of sowing and the weather. Those who grow for seed often find themselves at a disadvantage if the plants go on growing right through the summer, because the weather at the end of summer may not be favourable for ripening. On this account they do not prepare very rich, moist soil, and persist in cutting the flowers; but use ordinary soil, and are quite satisfied if the plants only grow four feet high, and go out of bloom and into pod in July or early August.

It will be seen from this that the interests of growers for seed and of cultivators for prolonged garden beauty are not served by the same cultural methods. It is possible, of course, to serve both purposes fairly well, but it needs a little give and take. In the main, growers of Sweet Peas will be wise to decide at the first whether garden display or seed production is the principal consideration. Amateurs at all events will be well advised to let seed-saving fall into second place, or even be abandoned altogether. Seed is cheap, and as a rule is more reliable when bought from a recognised dealer than when saved at home. Those who particularly want to save seeds of one or two varieties should cease picking flowers from a few plants in July. These will soon form pods, which will change colour in August. Should this month be wet and dull, so that the plants break into fresh growth and bloom instead of finishing off the crop, the plants may be drawn from the ground or cut off at the soil level, but left hanging on



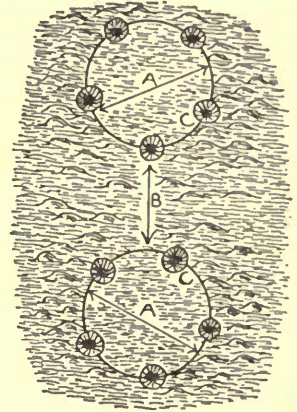
PANSIES  
By Marie Low





the sticks. The seeds can be gathered just before the pods split open.

The period and manner of sowing may differ considerably. It is not an uncommon plan to sow the new crop of seed soon after it is ripe in the open ground, with a view to getting early flowers the following year. As success is uncertain, amateurs should abstain from sowing seed of expensive sorts in this way; but there is no reason why cheap varieties, or mixed seed, should not be sown in September or October. Success is most likely to follow in light, warm, well-drained soil. In stiff, cold soils failure is common. In any case slugs are apt to take a heavy toll of the young plants in spring, and often ruin autumn-sown crops altogether, unless they are attacked resolutely in turn. (See later remarks on enemies of Sweet Peas.) The

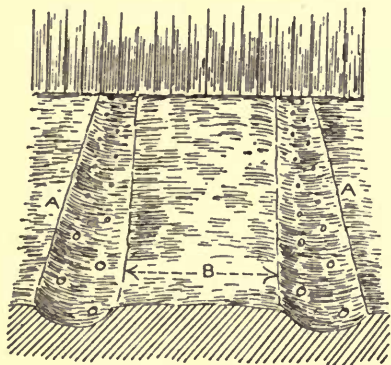


SWEET PEAS—SOWING SEEDS IN CLUMPS

A, A, circles drawn 24 in. in diameter; B, circles 4 ft. apart; C, holes for seeds or plants.

ground for autumn-sown seeds should be well dug and manured, and they may be covered with three inches of soil.

The time of sowing the main outdoor spring crop varies with the weather and the state of the soil. Any time from the middle of March to the middle of April will do. More consideration should be devoted to the state of the soil than to the progress of



SWEET PEAS—SOWING SEEDS IN DRILLS  
A, A, drills 14 in. wide, 2 in. deep; B, space between drills, 6 ft. wide.

the calendar. It is unwise to sow when the soil is very cold and wet, as a result of snow or continuous rain. So long as the soil is sodden and inclined to cling, the seed is best in the packets. Directly the soil, while moist, gets into a freely crumbling state,



sowing may be proceeded with. In case of doubt the cultivator should compress a handful of soil from just below the surface in his clenched hand, and then, relaxing the pressure and opening his fingers, observe whether the soil clings closely, almost as putty would, or falls away readily, leaving only a few moist particles adhering. In the latter event the soil is in a suitable state for sowing.

Whoever wishes to achieve real success in growing the beautiful and fragrant Sweet Pea will devote special consideration to the preparation of the site. Soil that is merely dug and manured in the manner practised by cottagers for growing Cabbages will not produce flowers of the finest quality for several consecutive months. True, there are soils of such natural quality that they will grow anything well, but they are few and far between, and even they can be improved.

First, however, a word as to site. There can be no doubt that the Sweet Pea is influenced almost as much by climate as by soil. It enjoys humidity. Wherever there is a choice of sites, a cool, moist one should be preferred to a dry one. It is noticeable that, taking one season and one show with another, growers in the north of Great Britain do better than those in the south, and those in the west better than those in the east. The moister climate is partly accountable for this. We cannot all grow Sweet Peas in the north and west; many of us, unfortunately, have no choice whatever as to site; but we may well keep the point before us, and act upon it whenever opportunity permits.

Deep cultivation plays an important part in the operations of the most successful growers. They devote enormous care and pains to the deepening and enrichment of the ground. This means considerable labour, and some amount of expense; but the one is amply repaid, and the other fully recouped, by a few successes on the show board. The ordinary grower—he who cultivates merely for a home supply of bloom—will not go as far as the specialist;

but even the former should deepen his soil by bastard trenching, because it will give him stronger plants and more and finer flowers. He should remove the top soil from the ground where he is going to grow the Sweet Peas to the full depth of a spade, and then dig over the under soil to another full spade depth, completely turning it. Before he replaces the top spit he should spread on a dressing of good yard manure at the rate of two to three barrow-loads to the square rod. By adopting this plan a depth of at least eighteen inches of pulverised soil will be secured.

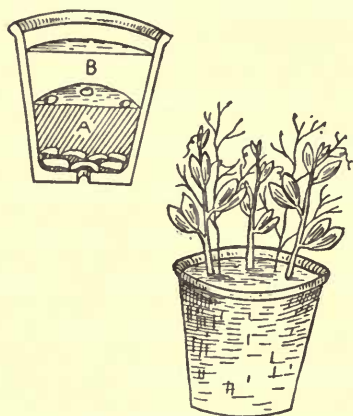
It may be asked what should be done if the substratum is not soil, but chalk or rock. In the former case the chalk may be broken up with a pick, and garden refuse mixed with it before putting on the manure and top soil. Further, the surface may be heavily mulched with manure when the plants are growing. This procedure gives a greater depth. In the case of rock the deepening must be mainly through the medium of surface additions.

Labour for this preliminary groundwork can generally be best spared in autumn or winter; but it should be done in spring rather than not at all. However close to the time of sowing or planting that it is practised, it must have an important effect on the crop. If done early the surface should be left rough and lumpy, because if it were broken up at once into a fine tilth the winter rains might cause it to settle down into a close mass.

The specialist will not content himself with bastard trenching, but will shift at least three spades' depth of soil; indeed, some of the most successful men prepare a full yard in depth of thoroughly pulverised, disintegrated, and manured soil. This means working the plot in broad strips, and having two tiers about eighteen inches wide each. The bottom soil is deeply dug and manured; the lower tier is turned on to it and manured in turn, and then the top tier is thrown on to the second. The result of this is that the ground is raised considerably above the surrounding level.



The question of manure is very important. There is nothing better than decayed manure from old hotbeds, or worked-out Mushroom beds. Failing this, a supply of good yard manure should be secured a few weeks before it is wanted, and laid up in a heap, with a layer of soil under it, to decay. If the ground is dug and manured in autumn, and left rough as suggested, it may be dressed with wood ashes whenever there has been a garden fire, and with soot whenever the chimneys are swept. Some time during



SWEET PEAS—SOWING SEEDS IN POTS

A, soil in pot with seeds sown; B, soil to cover the seeds, 1 in. deep. Young plants staked while growing in the pots.

February the following mixture of chemical manure may be spread on at the rate of seven pounds per square rod: three pounds of superphosphate, one pound of steamed bone flour, one pound of nitrate of potash, one pound of sulphate of potash, and one pound of nitrate of soda. The fertiliser may be scratched in with a rake or lightly turned in with a fork.

If this course of soil culture and manuring be followed there need be no fear of poor results. Liquid manure, supplied when the plants come into bloom, will further improve matters. A soaking of a different kind every three days will be better than daily driblets of one kind only. Liquid made from animal manure may alternate with the special fertilisers sold by florists.

In modern Sweet Pea culture it is not thought wise to rely upon outdoor sowings, whether made in autumn or spring. In order to make sure of starting with very strong, healthy, well-rooted plants, seed is sown under glass. The period of sowing ranges from September to March inclusive. Some highly successful growers sow singly in small (3-inch) pots in September, and keep the plants in a cool house throughout the winter. As a rule they only make three or four inches of growth before the

winter comes on, and are easily protected with a few thicknesses of newspaper in very severe weather. On no account should such early raised plants be subjected to much heat, or they will become long, drawn, and weakly.

February is a very good time to sow. One seed may be sown in each 3-inch pot, or five seeds may be put equidistant in a 5-inch pot. They will do quite well in a cool greenhouse or frame. If it is desired to get very early flowers heat may be given to the seedlings, but in this case care must be taken to harden the plants in a frame before they are put into the garden.

By adopting the plan of sowing under glass there is a practical guarantee that every sound seed will give a good plant, which is certainly not the case with outdoor sowing. This is important when the cost of new varieties is considered.

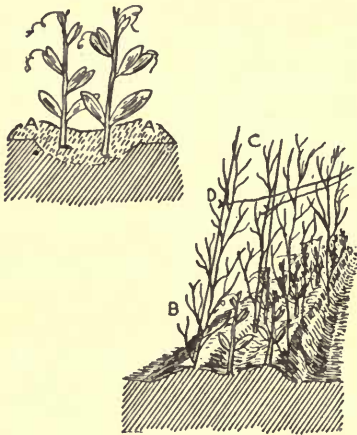
The seedlings must be kept close to the glass in order to prevent their becoming drawn and weakly. They will then grow slowly but steadily, and keep very sturdy.

A suitable time for planting will probably be found from the middle to the end of April. It should be done when the ground is neither quite dry nor absolutely sodden, but just pleasantly moist and crumbly. If, owing to bad weather, planting has to be deferred, and the seedlings show tendrils in the frame, chop some twigs out of the Pea sticks and set among them.

When planting out, turn the pot upside down with the fingers of the left hand spread across the soil among the plants, give the rim a sharp tap to loosen the pot, and then lift the latter off. Do not shake the soil away from the roots, but (assuming that several plants have been grown in each pot) separate them gently with the soil adhering to the roots. There will be no difficulty about this if the soil is moist. Six inches apart will be a suitable distance to plant, and three inches to cover. Freshly slaked lime may be scattered beside the plants to keep slugs away.



Directly the plants begin to form tendrils—and they will do this very soon after they are fairly established—the sticks which are to support them should be placed in position. It is wise to order these betimes, because then they are ready at the moment they are wanted. Larch, Ash, Hazel, and Chestnut are all employed, the local supply generally governs the kind used. The main point is that they should be tall and strong, so that when firmly fixed they will be capable of supporting a heavy mass of plants. The ends should be sharpened, and forced into the ground to a depth of eight or nine inches. If the sticks are set about ten inches apart in lines twelve inches asunder on each side of the plants, they will serve their purpose. The side branches of the sticks will cross each other, and the shoots can be interlaced.



SWEET PEAS—EARTHING UP AND STICKING

A, A, soil drawn up to young plants; B, sticks; C, sticks kept apart at the top; D, strands of string fastened to stout stakes placed at each side of row for support of sticks.

of eight or nine inches. If the sticks are set about ten inches apart in lines twelve inches asunder on each side of the plants, they will serve their purpose. The side branches of the sticks will cross each other, and the shoots can be interlaced. It may be necessary to tie the plants to the sticks while they are developing the first thirty inches of main stem, but this is easily done with raphia or green raffiatape. Directly side-shoots begin to form they will attach themselves tightly to the sticks by means of the tendrils.

A plan of treating the plants which is practised by one of the leading growers with the object of getting a succession of prize blooms is worth mentioning, and that is to pinch out the tip of the leading shoot of every alternate plant when it has reached four feet high, serving those left in the same way when they have reached a height of six feet. This plan secures early and late flowers. Of course the plants grow on again, and eventually reach a height of eight to eleven feet.

In view of the beauty of Sweet Pea flowers for decorating rooms, it is gratifying that cutting helps the plants to keep up

a continuous supply; indeed, that object could hardly be secured without it. Probably the pinks will be in most demand, because they are so charming in rooms under artificial light; but the grower must not pick from some plants and leave others. If he desire all to keep on blooming throughout the summer he must pick all regularly.

When there is a show in view it is a good plan to strip the plants of all their flowers about a week beforehand, as this ensures a supply of fine, fresh, bright blooms at the desired time. Flowers that have to be transported in a cut state, whether for private use, sale, or show, should be packed dry, and without cotton-wool. If packed in a wet state they will become spotted.

With reference to the use of Sweet Peas in vases, opinions differ somewhat as to whether they look best associated with their own or other foliage. Probably they never look better than with their own leaves, but there is no objection to associating them with carefully selected plants, such as *Gypsophila paniculata* or the pretty Cloud Grass, *Agrostis nebulosa*. Both of these plants can be grown from seed in the flower-garden. Indiscriminate mixing of Sweet Peas with alien foliage, or with other flowers, should be strictly avoided. The flowers are best gathered by taking the base of the stem between finger and thumb and making a combined squeezing and pulling motion; by this means the stem is drawn out of its socket.

Whether the plants are grown in rows or clumps may depend upon local circumstances, and on the taste of the cultivator. Some of the most successful growers have them in rows, others in clumps. If the row system is adopted, a long row may be made up of short blocks—perhaps only four feet of each variety, if convenient. It may be noted in passing, however, that for general garden effect rows of mixed seed look best.



Clumps look charming when established in selected positions in gardens. They may be placed on lawns, in herbaceous borders, or at fixed intervals beside garden paths. The simplest way of getting a clump is to plant in a circle, which may be from three to nine feet across, according to the space available. The plants can be supported with sticks or galvanised wire frames. A very good plan of supporting clumps is to fix a tall, strong bamboo cane upright as a centre-piece, set the sticks in a circle round it, and tie their tips to the bamboo. This has a neat and finished appearance.

The enemies of Sweet Peas make themselves felt from the very first stage. Birds and mice may attack the seeds when sown out of doors, and as a preventive the seeds should be moistened with linseed oil and then rolled in red lead. Wireworm is very fond of the seeds, and will sometimes find them out even when they are sown in pots and put in a frame, working up through the earth and entering the pots by means of the drainage hole. Wireworm is the most troublesome in land from which turf has been cut. It may be reduced by vigorous autumn cultivation, and dressing with kainit at the rate of seven pounds per square rod; and in spring with a dressing of Vaporite at the same rate. If it is found that the young plants go off when very small, slugs may be suspected. As already mentioned, lime checks them, and they can be reduced in numbers by placing traps in the form of heaps of brewers' grains near the plants. Birds sometimes attack the young plants. Twiggy shoots from the upper part of the sticks check them if placed among the plants. In cases of serious trouble from this source black thread must be strung just above the plants.

Moles are sometimes very troublesome, not in making direct attacks upon the plants, but in disturbing them by throwing up mounds while burrowing in pursuit of worms, on which the mole feeds. In this case the best plan is to buy a steel mole-trap from

an ironmonger's, and set it in the run with gloved hands for the mole has keen scent.

Later in the career of the plants they may be harassed by green fly or the Pea Weevil. The former can be destroyed by spraying with quassia water, made by soaking a handful of quassia chips in a gallon of water for a few hours. The striped Pea Weevil (*Sitones lineatus*) sometimes attacks the foliage, and lays eggs among the roots, which hatch into whitish maggots a quarter of an inch long. When the plants are growing vigorously under good garden cultivation the weevil is not a very serious enemy, and may be kept under by dusting the plants with soot occasionally while moist.

As regards fungoid enemies, the mildew *Erysiphe Polygoni* sometimes attacks the plants, and coats them with a grey mould. It is the most likely to be troublesome when the plants are growing on damp, undrained soil; or when they are checked by drought. Two parts of flowers of sulphur and one part of ground lime may be mixed together and dusted on. If yellow blotches are seen on the leaves, which presently become covered with a greyish down, pick off the growths and burn them. If other blotches show, spray the plants immediately with a preventive composed of half an ounce each of soft soap and sulphide of potassium dissolved in a gallon of water. Greenish spots with a darker rim betoken another fungus—*Ascochyta Pisi*. The preventive recommended for yellow blotch may be tried.

In dealing with varieties it may be well to do so in connection with the Classification scheme adopted by the National Sweet Pea Society, and which was first proposed by ourselves. It is a classification by colour. All the varieties of Sweet Peas in general cultivation are separated into fixed colour sections. If we give the various sections in one column, and selections of plain and waved standard varieties in two others, the reader will have the system and the best examples of it under his eye.



CLASS.	PLAIN STANDARD.	WAVED STANDARD.
White.	Dorothy Eckford, Finetta Bathurst.	Nora Unwin, Etta Dyke.
Crimson and scarlet.	King Edward, Queen Alexandra.	The King, George Stark.
Yellow and buff.	James Grieve, Mrs. Collier.	Clara Curtis, Paradise Ivory.
Dark blue.	Lord Nelson.	A. J. Cook (slightly).
Cerise.	Coccinea.	Chrissie Unwin (slightly).
Pink.	Prima Donna.	Countess Spencer, Constance Oliver, Mrs. H. Sykes (pale).
Orange shades.	Henry Eckford, St. George.	Helen Lewis, Nancy Perkin.
Lavender.	Lady G. Hamilton.	Frank Dolby (very slightly).
Violet and purple.	Duke of Westminster.	Rosie Adams.
Magenta.	George Gordon, Captivation.	Menie Christie.
Picotee-edged.	Dainty, Phenomenal.	Evelyn Hemus, Elsie Herbert.
Mauve.	Mrs. Walter Wright.	The Marquis.
Maroon and bronze.	Black Knight, Hannah Dale.	Prince of Asturias, Silas Cole.
Striped and flaked (red and rose).	Jessie Cuthbertson.	Paradise Red-flake.
Striped and flaked (purple and blue).	Prince Olaf.	Princess of Wales.
Bicolor.	Jeannie Gordon.	Mrs. Andrew Ireland.
Marbled.	Helen Pierce.	—

In connection with this question of varieties, it is important to remind readers that the Sweet Pea is in the white-heat stage of development, and new sorts are constantly appearing. Those who are particularly interested in the flower should keep in touch with the Society, and they will then learn about the newcomers as fast as these appear.

A few closing words with regard to the dwarf Sweet Peas. There are two sections—the Bush and the Cupid. The former grow about two feet high, and only require a few short sticks. They flower abundantly, and are well worth growing in small gardens. The latter only grow a few inches high, and do not

require any sticks at all. As far as flower is concerned they are a replica of the ordinary Sweet Peas, and where they thrive they make charming edgings. We grew them very successfully on a low limey bank in a garden on clay and with a somewhat humid climate. They have a pronounced weakness for casting their flower-buds while still quite closed, and to such an extent is this carried in some cases that the ground is littered with buds, and the plants are without beauty. This peculiarity prevents the Cupids from becoming popular.



## ANNUALS

THAT large class of plants which botanists distinguish as "Annuals" comprises some of the most popular of garden flowers. It embraces, for instance, the Sweet Pea, and if it contained no other it would possess distinction from the inclusion of this one plant alone. But it also includes the ever popular China Aster, the fragrant Ten-week Stock, the brilliant Poppy (some—others are perennials), the perfumed Mignonette, the gay Godetia, the dear little blue Cornflower, the pungent Nasturtium, the bright Candytuft, the blazing Zinnia, the strident Marigold, and the Verbena-like Phlox Drummondii. This, it will be admitted, is a powerful cohort. Add such others as the Chrysanthemum, the Convolvulus, the Larkspur, the Night-scented Stock, the Salpiglossis, the Nemophila, the Silene, and an idea can be formed of the blank which there would be in gardens if the Annuals as a class were excluded from them.

Every wise flower gardener will make himself acquainted with at least a few kinds of Annuals. His *forte* may be herbaceous borders, or he may give most of his attention to rock gardening; none the less, he will find places which the annuals will fill, and purposes which they will serve. For example, what can replace the Night-scented Stock as a perfume yielder at eventide? Its odour is delicious, and it remains in flower for at least four months. Then the Sweet Pea, the China Aster, and the Ten-week Stock are worth places in every garden. The first is alike graceful, fragrant, and continuous in blooming. The second has handsome flowers of a great variety of hues, and remains in beauty throughout the summer. The third is both sweet and beautiful.

A garden could be made attractive with no other flowers than Annuals. We do not recommend the course, because we are fully alive to the beauty of bulbs and the value of hardy perennials; but there can be no doubt that any person who chose to confine himself to Annuals, and was prepared to grow them really well, could not only secure very beautiful garden effects, but could insure a bountiful supply of appropriate flowers for room decoration. The one real weakness that would attend the exclusion of bulbs and hardy perennials would be the paucity of winter and early spring flowers. From May onwards a good succession of bloom could be had, which would reach its apogee from mid-July to mid-August.

The greatest of all Annuals—the Sweet Pea—is dealt with separately in this work, and we need do no more now than note its membership of the class with which we are dealing, and beg readers to give it that attention to which its intrinsic merits render it so richly entitled. The remainder may be dealt with in three groups—hardy, half-hardy, and tender. The first and second are almost exclusively cultivated out of doors, and the third under glass, but there are a few exceptions to both rules.

Let us in the first place define an Annual. It is a plant which begins and finishes its career within a year. It is sown, it blooms, it ripens seed, it dies, within a period of twelve months. Any plant which is raised in the spring of one year, blooms, lives through the winter, with or without leaves, and blooms again the following year, is not an Annual. In some circumstances certain plants that are generally classed as Annuals do this, notably Mignonette and Eschscholtzias; but the cases are exceptional. A plant may, of course, pass a portion of its existence in two successive years, and still remain an Annual, so long as it does not seed the first season. Thus *Silenes*, *Nemophilas*, and some others are frequently sown in late summer with the object of getting them to bloom in spring.

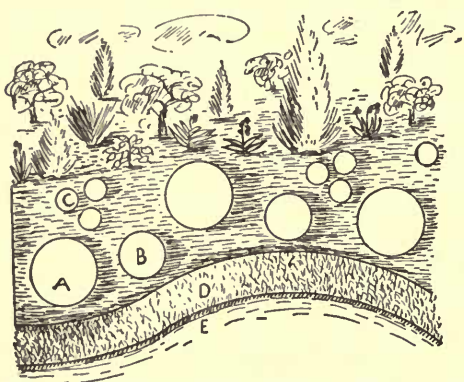
To complete definitions, a hardy Annual is one that passes the



whole of its career in the open air; a half-hardy Annual, one that is raised under glass and afterwards planted out; a tender Annual, one that lives out its life under glass.

Hardy and half-hardy Annuals may be used for bulb beds, mixed borders, banks, and even paths where unjointed stones are used. Some of the most important, notably Asters, make charming beds without the support of any other plants; but informality is gained by associating them with other things. Thus, Asters may

be mixed with coloured Tobacco (Nicotianas) or Salpiglossis, both of which are taller and have a lighter habit. The dwarf Stocks make delightful borders. Phlox Drummondii forms beds rivalling those of Verbenas, which were such great favourites for bedding in years gone by. Poppies make splendid breaks of vivid colour, and will thrive on both light and heavy soils. The singles are ephemeral, but the doubles last long.



ANNUALS—SOWING SEEDS IN BORDERS

A shows how to prepare the ground for large clumps of Annuals; B shows how to arrange smaller clumps; C shows how to arrange clumps of tall Annuals near the back of the border; D, grass verge; E, path.

The rank and file of Annuals perhaps prove the most useful as clumps near the fronts of mixed borders, but a few selected kinds may be utilised to make up beds of themselves; and if the hints on culture which are to be given are followed they will probably vie with any other beds in the garden. The objection that the plants quickly lose their beauty does not weigh with us. They are fugitive when badly grown, but not when well grown. Such things as Clarkias, double white Matricaria (the single is a poor thing, seeds tremendously, becomes a nuisance, and should therefore not be admitted), Godetias, and double Poppies have done us yeoman service in beds, flowering brilliantly and long. Look, too, at the persistence of Nasturtiums. They grow right into the autumn

unless hard frost cripples them, and as fast as new growth is made it produces flowers.

An interesting and charming idea that we have seen carried out is to form garden pathways with old flagstones, not laid closely in parallel lines, if unbroken, but triangularly. Such stones are, however, often broken at the corners, and this is well, because soil spaces are left between them, and in these *Portulacas* are sown. They are most brilliant flowers, and will thrive almost anywhere, not in the least objecting to roasting sunshine. The flowers may be sown a little to right and left of the centre of the path, and they will not then get trodden out of existence.

There is yet another use to which many beautiful Annuals can be put, and that is to cover porches, arches, pergolas, or to droop from window-boxes. The Canary Creeper, *Tropaeolum canariense* or *peregrinum*, is very popular, and the half-climbing forms of *Tropaeolum*, such as some of the forms of *Lobbianum*, are extremely useful. Then there are the *Convolvulus*s, the quaint *Cobaea scandens*, and the pretty *Maurandias*, *Thunbergias*, and *Mina lobata*. One occasionally sees a pergola covered with a collection of Ornamental Gourds, which are half-hardy Annuals, and may be grown like Vegetable Marrows. They vary greatly in form and colour. In the case of some varieties the fruits are of singular shape, in others of rich colour. We know of more than one case of pergolas being furnished in this way, and if the plan is open to the charge of being somewhat fantastic, it is certainly not without both interest and beauty.

Having indicated some of the uses to which Annuals may be put, we may now pause to consider a few important cultural points, and then give selections of the best kinds and varieties.

Dealing first with the soil, we may say that it presents a very simple problem. Annuals do not require the deep, rich soil which *Roses* and herbaceous plants demand; indeed, it is a positive disadvantage in the case of many, notably *Nasturtiums*, because it



causes growth so luxuriant that the plants flower poorly. There are few classes of garden plants, whether fruit, flowers, or vegetables, for which we would prefer a light, shallow soil to a heavy, deep one, but the Annuals certainly constitute one. Even in the case of shallow, dry soil overlying chalk—that bogey of the gardener—we would say that the disadvantage lies with the heavy soil, except for Sweet Peas. Mignonette is at its best and sweetest in light, chalky ground; it thrives to perfection, and blooms gloriously. Clarkias, Godetias, Mallows, Sweet Sultans, Candytuft, Love-in-a-Mist (*Nigella*), Larkspurs—all these will thrive in such land, at which the Dahlia grower, for instance, would be horrified. The pretty Love-in-a-Mist, generally regarded as an interesting, but merely second-class, summer garden flower, becomes a plant of real importance on chalk. It grows freely, flowers abundantly for two or three months, and its blue is the clear, pellucid hue of Italian skies.

We see, then, that as far as Annuals are concerned we may easily be too kind. We may waste labour and manure. We may make the plants grow too well—or, rather, too strongly. There is no need whatever for digging more than a spade deep, and the amount of manure used should not exceed the very modest quantity of one barrow-load per square rod. But while the grower should be scrupulously careful not to overdo the use of forcing manures, he may with advantage draw upon chemical manures of the class which encourage flowering rather than leaf production. Of such are the phosphatic and potassic fertilisers. Of the former bone flour may be named, and of the latter sulphate of potash. An ounce of each of these to the square yard, spread on whenever the ground is dug, but preferably in February or March, will be beneficial, leading to the production of abundance of flowers, and to the enrichment of their colours.

It is an excellent plan to rough-dig the ground in winter, leaving the surface quite lumpy, and then to spread on some wood



VANDA SUAVIS  
By A. Fairfax Muckley





ashes and soot. Towards the end of March, or in the early part of April, the surface may be raked down, and the soil will probably fall at once into a fine tilth, admirably suited for the small seeds. Stiff clay soil may require special care to get the desired tilth. It will probably be necessary to watch the weather closely, and test the soil frequently with the tools. Our experience with clay soils is that they may be ripe for working down on one day, and then, if the opportunity is lost, may not be in condition again for several weeks. It will help to reduce very obstinate soils if, at the time of the first digging, some old mortar rubbish, or the sweepings from high-roads, are spread on.

If the Annuals are to be grown in beds to themselves, consideration should be devoted to finishing the soil off neatly. Have the sides raised above the surrounding grass, and clear of the verge, so that a neat edge can be kept with the shears. A border of some dwarf plant, such as Thrift, or Pinks, or an Annual like the Sweet Alyssum (of which there is a very compact variegated form grown under the name of *Koenigia maritima variegata*), will be an appropriate finish to the bed.

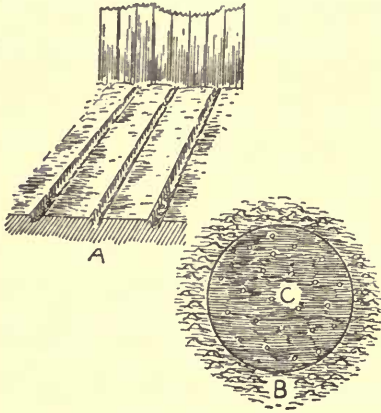
Coming to the arrangement of the plants in beds, they could either be put in lines or clumps. We greatly favour the latter, because they look more graceful and informal. If, however, the grower prefers to sow in lines, he will find it convenient to get a board about ten inches wide, and use it for getting straight rows. He can form a drill by turning the rake on end, teeth outward, along the edge of the plank, then simply turn the latter over and draw another drill. This is quicker than constantly resetting a garden line. Unless the flower gardener is very expert he should not attempt to draw straight drills of any length by the eye alone. Rows have a way of getting crooked when this is done.

With respect to clumps, the grower can do one of two things—form a shallow saucer by a quick rotary motion with the palm of his hand, or make a circle by pressing the rim of an inverted



flower-pot into the soil. In the latter case he can, of course, form larger or smaller rings by using different sizes of pot. Whichever plan he adopts, let him avoid getting the clumps too close together. It is a mistake very easily made, especially in a large bed. There seems to be such an immense area of soil that it can never get filled. The rings or patches should be at the least a foot apart for small things, and two feet for large ones. The object should be to provide for a clear space up to the time

that the plants reach the flowering stage, in order to facilitate keeping down weeds and encouraging rapid, healthy growth by the regular use of the hoe.



ANNUALS—SOWING SEEDS

A shows how to sow seeds in drills; B shows how to sow them in patches or clumps; and C shows the seeds scattered thinly on the prepared soil.

There is room for the exercise of considerable taste in associating the different plants in a bed of mixed Annuals. The colours may be contrasted, for one thing. Then, different height and habit may be considered. It is not wise to put tall things in the centre and arrange the others in regular tiers to the edge, as that may look stiff. Certainly we

would not so far depart from this—the common—plan as to have short things in the centre and tall ones at the edges; but a tall, loose-growing plant may be used here and there to impart lightness to a group of short, compact plants. The amateur will see this principle adopted in the flower-beds in the various public parks and gardens, although the plants employed may not be Annuals. For instance, he will see a Fuchsia, or a Grevillea, drooping over a mass of compact Begonias.

The seed should be sown very thinly. If small, it may be covered half an inch deep; if large, an inch.

For some unexplained reason a practice has grown up of

treating Annuals as though they differed from every other class of plant in cultivation, and required no attention after sowing. They are regarded as being all the better for being left severely alone. Even if there were no such organism as a slug, and no such cultural error as thick sowing, this would still be wrong; but as slugs and over thick sowing are both very common, they in themselves afford reasons for giving the plants attention. One thing, however, may fairly be said of Annuals, and it will appeal to the amateur who has very little spare time for gardening in summer, and that is, if the early treatment is all right, very little attention of any kind will be wanted after June.

We strongly urge that the Annuals be regarded as real objects of interest from the first, and regularly attended to. If a period is chosen for sowing when the weather is mild and genial, from the end of March to mid-April, and the soil is moist and crumbly, seedlings should be visible in about ten days. If they do not appear within a fortnight the grower should want to know the reason why. We do not say that if seeds of Annuals do not germinate within a fortnight there is necessarily something radically wrong, because we have known seed lie dormant for six weeks in a cold spring, and then germinate well. But we suggest that tardy germination is a fair subject for investigation, particularly if the ground is known to be infested with wireworm and leather-jacket grubs. These greedy pests will eat off batches of seedlings at the moment of germination, so that the plants never show through the ground at all; and often in such cases suspicion fastens on the seedsman. There is very little bad seed sold nowadays, but although seed dealers have improved, ground pests have not. They are as bad as ever they were. In case of unexplained losses in ground that is known to be infested (and soil from which turf has been removed is almost certain to be) the amateur should make a fresh sowing, and he should mix rape dust with the soil.

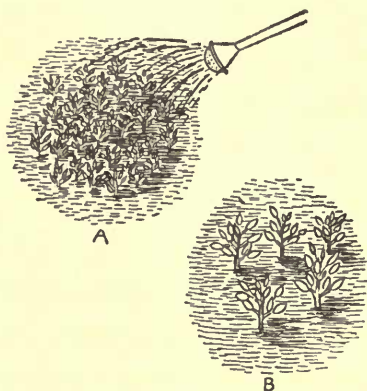


The arch enemy when the seedlings have come through is the slug. Both snails and slugs are fond of young Annuals, and will often destroy a whole bed of them in a few nights. These hungry marauders come forth in force, with appetites well whetted, in spring. Now, thrushes are great lovers of them, and these birds should be protected and encouraged, in spite of any damage they may do to crops in the summer. Lime is a valuable deterrent of slugs. They detest it in all forms, and it has no ill effect on plants. It is perhaps best applied in the form of dry, freshly

slaked quicklime at night, when the slugs are likely to be feeding. Two applications should be made at intervals of about twenty minutes, because the slug can slough his skin and so get rid of one dose of the hot powder; but the second catches him at a hopeless disadvantage, and finishes him off. Lime water, made by putting a lump of lime of the size of a cocoa-nut in a pail of water in the morning, and straining off the liquid at night, may be poured on the beds after dark, and

will thin the slugs down. Another way of reducing them is to put heaps of brewers' grains near the beds as baits. Any slugs or snails captured can be destroyed instantly by dropping them into a vessel of brine.

If the seed has been sown thinly the task of thinning the seedlings will not be a very irksome one. It may be done twice, the first time when they are about an inch high, and the second when they begin to crowd each other after being thinned to a couple of inches apart. Few people are bold enough in thinning seedlings. Or they are so economical in disposition that they do not like to throw plants away. Both weaknesses must be over-



ANNUALS—THINNING-OUT SEEDLINGS

A, watering clump of seedlings before thinning is done; B, the result of thinning-out. Plants growing sturdily.

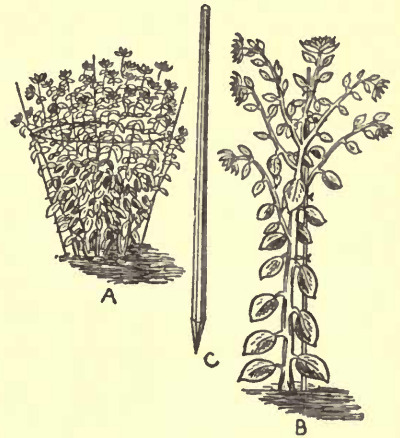
come if the best results are to be secured. Very few Annuals should be nearer than nine inches to each other when they come into flower; and the amateur who makes it a rule to thin to that distance the first year, and bases subsequent practice on the experience which he gains in his first season, will be successful.

Stopping or pinching need not, as a rule, be practised, because the majority of the kinds will develop a naturally bushy habit if they are thinly grown.

Hoeing among the plants is splendid practice. It takes but a few minutes a week to run a hoe among the occupants of a bed when there is a clear space between the plants, and some order in the arrangement of them. Hoeing cleans and aerates the soil, and promotes rapid growth. Staking will not be required in the majority of cases. If needed at all it will be in connection with a few tall, straggly things that are growing in wind-swept spots. Sometimes one bamboo or other stake attached to the main stem will suffice. If not, it will be advisable to chop a few sprayey branches out of the tops of Pea sticks, and utilise them.

If there is one practice which conduces more than another to continuous flowering, it is the picking off of fading flowers before they have time to ripen seed. The logical conclusion from this, of course, is that if flowers must be regularly cut it is just as well to take them while they are fresh enough to be suitable for room decoration, and so not only anticipate seeding, but make use of the flowers. That is so. All Annuals are not suitable for vases, but many are.

Watering will be advantageous in dry weather, but as regular



ANNUALS—STAKING

A shows how to stake weakly-growing Annuals in clumps; B shows how to stake tall-growing Annuals; C shows how to prepare the tall stakes, which should be painted dark green.



watering entails considerable time and labour, besides being a source of expense, the necessity of it should be reduced as much as possible. Hoeing, and mulching with a few inches of coconut fibre refuse, decayed manure, or lawn mowings, both tend to reduce the necessity for watering.

In proceeding to make selections of Annuals, we will give a table of the principal hardy kinds first, and indicate their colours and heights; then select a few of the most valuable of them for special mention.

## THE BEST HARDY ANNUALS

KIND.	HEIGHT IN INCHES.	COLOUR.
Alyssum, sweet.	9.	White.
Bartonia aurea.	12.	Yellow.
Candytuft, various.	12.	Crimson, purple, white, &c.
Chrysanthemum, various.	12 to 30.	Yellow, white, purple, &c.
Clarkias, various.	18 to 24.	Rose, purple, &c.
Collinsia bicolor.	15.	Blue and white.
Convolvulus, various.	12.	Blue, white, &c.
„ climbing.	72 or upwards.	Various.
Coreopsis, various.	12.	Orange, yellow, and brown.
Cornflower, various.	12 to 18.	Blue, white, &c.
Eschscholtzia, various.	12.	Orange, rosy red, &c.
Eutoca viscida.	12.	Blue.
Gilia tricolor and alba.	9.	Purple, white.
Godetia, various.	12 to 18.	Crimson, rose, white, &c.
Gypsophila elegans.	12.	White.
Helianthus (Sunflower).	36 to 84.	Yellow.
Kochia scoparia.	24.	Graceful foliage.
Larkspur.	12 to 24.	Blue, white, &c.
Lavatera (Rose Mallow).	36.	Pink, white.
Leptosiphon, hybrids.	6.	Various.
Limnanthes.	6.	Yellow and white.
Linaria, various.	12.	Purple, white, &c.
Linum (Flax).	12.	Red.
Lupinus, various.	30.	Blue, yellow, white, &c.
Malope (Mallow).	36.	Crimson.
Matthiola (Night-scented Stock).	12.	Lilac.
Mignonette, various.	9.	Red, white, yellow.

KIND.	HEIGHT IN INCHES.	COLOUR.
Nasturtium, dwarf.	9.	Scarlet, white, &c.
„ climbing.	36 and upwards.	„ „
Nemophila insignis.	6.	Blue.
Nigella (Love-in-a-Mist).	12 to 18.	Blue.
Phacelia campanularia.	9.	Blue.
Poppies, various, single and double.	12 to 30.	Scarlet, rose, salmon, pink, white, &c.
Salvia Bluebeard.	18.	Blue.
Saponaria calabrica.	6.	Pink.
Scabious, sweet.	12.	Purple, white, &c.
Silene pendula compacta.	6.	Pink.
Sweet Sultan.	12.	Purple, white, yellow.
Virginian Stock.	6.	Pink, white.
Viscaria, various.	9.	Red, &c.

Commenting on some of the plants in the above list, the Sweet Alyssum has already been mentioned as a good edging plant. Thorburn's Dwarf Bouquet is a small variety of it.

The Candytufts are particularly useful, because they come early into bloom, and will grow almost anywhere. A good strain of carmine is one of the brightest and most useful Annuals we have.

The varieties of annual Chrysanthemum called Morning Star and Evening Star, which are different shades of yellow, are very desirable. The amateur should also grow Chrysanthemum Burridgeanum, which will give some darker shades.

Of the Clarkias, elegans rosea must be included whatever else is left out. It is a very graceful plant, one of the earliest to come into bloom, and one of the last to go out.

The Eschscholtzias are very bright, and will grow anywhere. Californica and Mandarin are orange, Rose Cardinal rose. These plants have very finely cut foliage.

The Godetias should be regarded as indispensable. They are not very early bloomers, but they last a long time. They will stand drought better than most plants if they are raised sturdily. Dwarf Pink, Schamini, Lady Albemarle, and Duchess of Albany are good varieties.



The Lavateras (Rose Mallows) are splendid plants for dry soils, blooming profusely and long where most other plants would fade quickly. The best forms are roseo-splendens and its white variety. Both have flowers as large as those of climbing Convolvuluses.

The Night-scented Stock should be sown in patches near the windows of the house, so that the delicious odour which it exhales may enter the house. It is a somewhat straggly grower, and the colour is not bright—in fact, the flowers look quite withered throughout the day, and only present any semblance of beauty at night. But it is very persistent, lasting quite into the autumn.

There are now a very large number of Nasturtiums. The Tom Thumb varieties, such as Empress of India, are very vivid. The variegated leaf variety is interesting and attractive. It rambles freely, and is well worth growing. Sunlight is a yellow of medium height, but self-supporting. The Ivy-leaved Nasturtiums are also good things.

There is a splendid variety of Love-in-a-Mist, called Miss Gertrude Jekyll, which ought to be got. It is worth trouble to procure, being double the size of the old one, and a lovely shade of pale blue. The plant blooms incessantly for three or four months, and does not mind dry soil.

The Shirley Poppies are beautiful singles that one can buy in mixture. They are brilliant but ephemeral, and some of the giant doubles, which can be had in scarlet, white, striped, pink, and other colours, should be grown. They are splendid plants in beds, for their leaves are handsome, and when the huge flowers are thrown up well above the foliage on tall, strong stems, there are few garden plants to excel them.

The Saponarias and Silenes share with Candytuft, Bartonia, Collinsia, Limnanthes, Nemophila, and Virginian Stock the merit of being good spring as well as summer bloomers. To flower in spring they should be sown at the end of August.

The Scabious (not strictly an Annual) and the Sweet Sultan



CANTERBURY BELLS  
By A. Fairfax Muckley

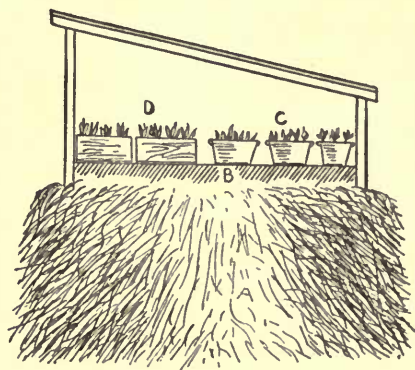




are very fragrant, and they are easy to grow. That other perfumed favourite the Sweet Pea has a chapter to itself.

The half-hardy Annuals are, as we have already mentioned, raised in a frame or greenhouse in early spring, and planted in the garden when the weather is warm enough—say in May or the early part of June. If the amateur has no glass he must raise his Stocks, Asters, Phloxes, Marigolds, and the rest (unless, indeed, he buys what seedlings he wants) by sowing out of doors, but this is not safe before the beginning of May.

Those to be started under glass are best sown in boxes, and if a special compost can be prepared it should consist of equal parts of loam and leaf-mould, with an eighth of coarse sand. It should be pressed firmly into boxes three or four inches deep, which can be bought from a grocer or oil-and-colour merchant, as a rule, at a very cheap rate. Sow in drills about half an inch deep, with the soil in a moist but not sodden state, and cover the boxes with squares of glass if possible, but, with or without glass, with sheets of newspaper, which may be removed when germination has taken place.



HOW TO RAISE TENDER ANNUALS

A, a hotbed ; B, cocoa-nut fibre, ashes, or soil ;  
C, seedlings in pots and pans ; D, seedlings  
in boxes.

If the plants are being raised in a house, they should be placed on a shelf near the roof glass ; otherwise they will get drawn and weak. Remove them from the seed rows before they grow thick enough to spoil each other, and set them out three inches apart in other boxes. By the time they have grown sufficiently to again threaten overcrowding, the weather will be warm enough for them to be planted out of doors.

The remarks as to soil and planting made about hardy Annuals apply to the half-hardy. A deep, rich soil is not necessary for



the majority. Asters, it is true, like a fertile soil, but heavy applications of natural manure must be avoided none the less, or "Aster sickness" will follow. Soot, wood ashes, bone flour, superphosphate, and sulphate of potash impart fertility as well as yard manure. Of course, the ground should be well worked and pulverised. The other general remarks made under hardy Annuals apply.

## THE BEST HALF-HARDY ANNUALS

KIND.	HEIGHT IN INCHES.	COLOUR.
Acroclinium.	12.	Rose.
Ageratum.	12.	Blue.
Amaranthus caudatus (Love-lies-bleeding).	18.	Crimson.
Asters, various.	9 to 24.	Nearly all hues.
Brachycome (Swan River Daisy).	18.	Blue.
Cobaea scandens.	Climbing.	Purple.
Cosmos bipinnatus.	30.	Crimson, pink, white.
Gaillardia.	18.	Orange, brown, yellow, &c.
Helichrysum (Everlasting).	12.	Red, white, yellow, &c.
Layia elegans.	12.	Yellow and white.
Marigolds, French.	12.	Striped.
Marigolds, African.	24.	Yellow, orange.
Martynia fragrans.	18.	Purple.
Mina lobata.	Climbing.	Red.
Nemesia strumosa Suttoni.	15.	Various.
Nicotiana affinis.	24.	White, sweet.
"    sylvestris.	36.	"    "
"    Sanderac.	30.	Red.
Perilla Nankinensis.	18.	Purple leaves.
Petunias.	12 to 18.	Various.
Phlox Drummondii.	9 to 18.	"
Portulaca, single and double.	3 to 6.	"
Salpiglossis.	18.	"
Statice.	12 to 24.	Yellow, rose.
Stocks, Ten-week.	12 to 18.	Various.
Tagetes signata pumila.	9.	Orange.
Venidium calendulaceum.	9.	"
Zinnias, single and double.	18.	Various.

Asters rank very high among the half-hardy Annuals, and they are well worth specialising. There are several types, among which the Dwarf Bouquet, Dwarf Chrysanthemum flowered, Paeony flowered, Quilled, Victoria, Comet, and Ostrich Plume rank high. All can be bought in mixtures, or in assortments of from six to twelve separate colours. The Ostrich Plume will be found particularly valuable for garden decoration, owing to their graceful habit and large, fleecy, richly coloured flowers.

Gaillardias are not always strictly annual, but are generally grown with this class. Their large, circular, warm-tinted flowers are very handsome.

Marigolds are old favourites, and *Nemesia strumosa* Suttoni a new one.

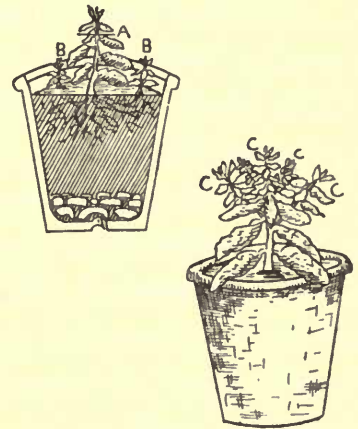
The *Nicotianas* (Tobacco Flowers) are sometimes biennial or perennial in duration, but are generally grown as Annuals; and the same remarks apply to *Petunias*. Both plants should be grown, the former for perfume and evening bloom, the latter for their large, richly coloured flowers.

The *Phloxes* rival *Verbenas*, and the *Salpiglossis* has a grace of habit and a diversity of colouration of its own. Its large bell-shaped flowers are quaintly beautiful.

Stocks are quite indispensable. Like the *Asters*, they can be bought either in mixed colours or in assortments of several distinct hues. The Dwarf German is shorter than the Giant Perfection, but the latter produces the finest spikes of bloom.

*Zinnias* are very brilliant. They like a little bottom heat to start in. Although slow beginners without warmth, they grow rapidly when once in swing, and are splendid garden plants.

The tender Annuals, which are used for greenhouse or conservatory decoration in pots, are not numerous. The *Balsam*—of



MIGNONETTE IN POTS

A, a strong seedling pinched at the dark line; B, B, weak seedlings to be destroyed; C, C, C, C, young shoots growing from the pinched plant.



which the *Camellia*-flowered is one of the best types—is one of the most familiar examples. The *Browallia* is a pretty plant that thrives in a cool greenhouse. *Alonsoa Warscewiczii*, with bright scarlet flowers, is useful. Dwarf Bouquet Asters are suitable for pots, and *Mignonette* is often grown in pots, especially for winter blooming; *Nemesias* may be grown in the greenhouse. *Petunias*, especially the double fringed, are much in demand for this purpose. The *Rhodanthe* is a charming everlasting suitable for pot culture. Ten-week Stocks are frequently pressed into service.

All the flowers named can be raised by sowing in boxes in a warm greenhouse in spring, pricking the plants out into other boxes when they get thick, subsequently transferring them to small pots, and from these to larger when the small ones are filled with roots. See fuller remarks as to the management of young plants in the chapter on Greenhouse, Conservatory, and Hothouse Flowers.

In the case of *Mignonette* and *Rhodanthes* about half-a-dozen plants are generally grown together in a 5 or 6 inch pot. *Mignonette* seed is sown direct in the flowering pot, as it does not transplant well.

## WATER LILIES AND OTHER AQUATIC PLANTS

IN the great economy of Nature provision has been made for vegetation in all kinds of situations—swamps, deserts, mountains, valleys, cliffs, and seashore. The aquatic plants can vie with any other section in beauty and luxuriance. As might be expected, they are for the most part vigorous growers of succulent habit; but, what is of the most importance from our present point of view, many produce large, beautiful, and perfumed flowers.

In the old days of bedding plants it was very rarely that a water garden was provided. True, on large estates Water Lilies were often grown in the lake which was usually to be found in the park, or some other part of the grounds; but aquatic plants were not, as a rule, grown within the confines of the garden proper. Happily, things have changed, and we now see them in almost all gardens where real interest is taken in plants.

There are two great reasons for the change which has taken place—(1) The removal of the misconception which existed as to the requirements of Aquatics; (2) the increased number of beautiful varieties introduced and exhibited by florists. Because Water Lilies were only grown in large lakes in years gone by, a belief appears to have grown up that they would fail in other circumstances. It was assumed, in the absence of evidence to the contrary, that they would only thrive under the opulent shadow of Privilege. The old white Water Lily, *Nymphaea alba*, was regarded as the legitimate possession of the large landowner. It was placed in much the same position among plants as the peacock was among birds.

With the spread of a love for hardy plants among all classes



of gardeners, and a study of more natural forms of gardening than had enjoyed favour previously, Water Lilies began to receive attention. Experiments soon proved that they were amenable to cultivation in the smallest garden, and not only so, but that they were well worthy of being grown. Hybridisers began to work on the *Nymphaeas*, alike in England, France, and the United States; with the result that many beautiful forms were added to the existing list.

A potent means of bringing home the adaptability of Water Lilies for the smallest places was adopted by some enterprising dealers in hardy plants. It was to form aquatic gardens on a small scale, with real plants and real water, at some of the large flower shows. Thousands of people saw Water Lilies, evidently quite at home, and flowering gaily, within the confines of a corner of an exhibition tent. This was evidence, not to be refuted, that Water Lily culture was open to the amateur of modest means as well as to the owner of large estates.

While the *Nymphaea*, or Water Lily, is unquestionably the most important of aquatic plants, it is by no means the only one worth specialising. In this connection we have to consider plants that grow on the margin of lakes and streams, as well as those that grow actually within the water. And this being so, the magnificent Japanese Iris (*laevigata* or *Kaempferi*) comes within our purview. This is almost as beautiful and valuable a plant as the *Nymphaea* itself, for it grows vigorously, and produces large numbers of immense flowers, most brilliantly and diversely coloured.

Some of the less known Aquatics are very desirable. There is, for instance, the Water Hawthorn, *Aponogeton distachyon*, a charming white flower, most deliciously perfumed. The Water Violet, *Hottonia palustris*, is also attractive. The Yellow Water Lily, *Nuphar luteum*, is a good plant. The Water Soldier, *Stratiotes aloides*, is pretty. The Bog Bean, *Menyanthes trifoliata*,

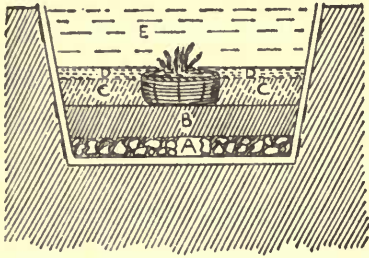
is a delightful flower. Add to these such things as the Water Flag (*Iris Pseudacorus*), the Marsh Marigold (*Caltha palustris*), the Japanese Primrose (*Primula Japonica*), which never does so well as in moist soil near water, and may therefore be included with the Aquatics without over-straining a point; the Grass of Parnassus (*Parnassia palustris*), the Arrowhead (*Sagittaria sagittifolia*), the flowering rush (*Butomus umbellatus*), the Rosy Primrose (*Primula rosea*), to which the remarks made in connection with the Japanese Primrose apply; *Trapa natans* and *Azolla Caroliniana*, both with floating leaves; *Alisma Plantago*, *Limnanthemum nymphoides*, *Acorus Calamus*, *Pontederia cordata*, the Arum Lily (*Richardia Africana*) in mild districts only—add, we repeat, these things, and a most beautiful selection is provided.

All of the foregoing may be grown out of doors, but a few of the Nymphaeas, such as *gigantea*, *Devoniensis*, and *stellata*; also the beautiful *Nelumbium* (the Sacred Bean or Egyptian Lotus), which is fragrant, and has many varieties; the extraordinary *Eichornia*, and the Lattice leaf plant (*Aponogeton fenestrata*, or *Ouvirandra fenestralis* as it is called), the lace-like leaves of which float on the water, require cultivation under glass.

It cannot be expected that every amateur is in a position to grow the whole of the plants named, but he can at least manage a few Nymphaeas. Should he say that he has no pond, we say: "Make a pool." If he should reply that he has neither space nor means even for this, we still have an answer, and it is: "Grow them in tubs." Several of the smaller sorts, such as *Nymphaea odorata minor*, a small form of the scented Water Lily; *pygmaea* or *tetragona*, white, flowering in June, and its yellow variety *Helveola*; also the hybrids *James Brydon*, *Marliacea carnea*, and *Marliacea chromatella*, which are respectively red, pink, and yellow, do admirably in tubs. These sorts are not like the old British Water Lily, *Nymphaea alba*, in wanting deep water. They are more at home in a depth of twenty to thirty inches.



A tub does not cost much. Small ones may be made by sawing an ordinary paraffin-oil cask (the value of which is about half-a-crown) in halves, replacing the top, of course. In order to get rid



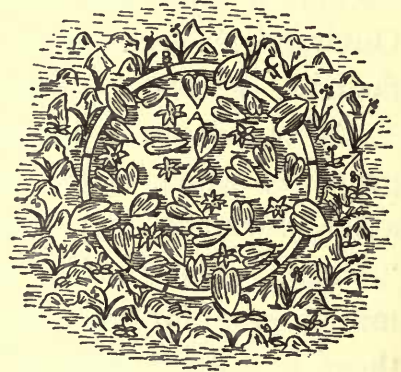
WATER LILIES—TUB PREPARED FOR PLANTS

A, stones; B, rotted turves; C, fine loam; D, sand; E, water. Tub sunk in ground. Lily roots planted in basket.

of the paraffin, put some shavings in the tub, set them alight, and roll it slowly over, in order that the whole of the sides may be charred. Have some sand handy in case it is necessary to dash out the flames—which, however, is not likely. Tubs thus prepared may be embedded in the soil, and a few large rockery stones placed round the edge, with *Arabis* and *Aubrietia* among them, in order to give a natural appearance. They are then not

in the least unsightly, and they last for several years.

In hot summer weather there will be a certain wastage of water, and the tubs will need to be refilled. There is rarely very much trouble (although it is not very serious after all) in the case of a pool that is made to receive rain water, either by surface drainage from the soil, or from the roof of the dwelling. The winter and spring rains fill it up, and the summer loss by evaporation is usually made up by the occasional rains. The pool need not be a large one, and it may be provided with a fountain or not according to the taste of the owner. It would form an attractive centre to a



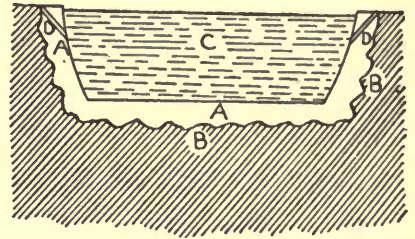
TUB EDGE FURNISHED WITH STONES AND PLANTS

A, lilies in tub; B, edge of tub; C, plants and stones.

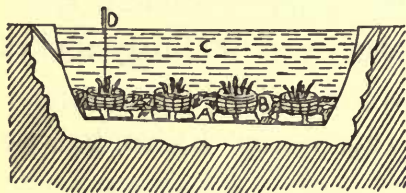
Rose garden, or make a cool spot near a summer-house. The exact place for it must be governed by the fall of the water which feeds it, and the cost will depend in great part on the length of the connecting pipes. To open a trench and lay in

twelve or fifteen feet of 4-inch earthenware drain-pipes is quite an inexpensive matter; and if these are connected with a down pipe carrying rain-water from a moderate roof area, there will be abundance of water for maintaining a pool ten feet across and thirty inches deep.

To make such a pool the earth should be excavated to a depth of three to four feet, and the sides should be gently sloped—"battered," as builders say—so that the pool is wider at the top than it is at the bottom. It must be made watertight, either by puddling with clay, or by lining with concrete. In many places clay is not procurable locally, and it is hardly worth while to cart it from a distance. Where it can be got near it will do quite well if thoroughly adhesive. It should be first of all chopped up into



PONDS FOR WATER LILIES—PUDDLING  
A, lining of puddled clay; B, rough edge of original soil left jagged so that the puddled clay may "bite" into it; C, water; D, iron rods embedded in clay to hold it firmly and prevent slipping.



PONDS FOR WATER LILIES—PLANTING  
A, stones for baskets containing the Lilies to rest upon; B, good turfy loam; C, water; D, name label attached; E shows Lily root in basket.

small pieces, then watered, and beaten up into a plastic mass that will spread on like mortar. It should be well beaten or trodden as it is laid on, and should form a close lining not less than four inches thick, preferably six. The lining should rise a little above the water level. In the absence of clay, concrete should be used for a lining three inches thick.

With regard to planting, if the pool is puddled the bottom may be covered with six inches of turfy loam, and the plants put into that. If concreted, soil could still be placed in, but it is perhaps preferable to pack pieces of turf round the roots, tie the whole up in a bundle, and lower it down. The plants will very soon establish themselves, and grow vigorously. The planting may be done in April or May.



The edges of the pool need not go bare. Some pieces of rockery stone may be placed round them, as advocated for tubs, and plants grown in the soil between them.

The Water Lilies will throw up successions of flowers throughout the summer. The leaves will float on the water, and between them the large blue, white, pink, or yellow flowers will appear. They like sunshine, and may only partially open, if indeed they attempt to do so at all, on dull days. But in warm, sunny weather they will be glorious, and they will remain open until nightfall, when they will close, to reopen again on the next sunny day. The number of flowers which half-a-dozen plants will throw up is enormous, and if the blossoms get smaller as autumn approaches, they will still be beautiful.

The plants will give no trouble. They will flower incessantly for several months, and make no demands on the cultivator. True, if they are growing in small tubs it may be well to throw some litter over them in severe weather, as the water is so shallow, and might get frozen through; otherwise nothing need be done. Even in a hard winter the plants will not take any harm in thirty inches of water, and that is a very suitable depth for a pool.

A few rushes may be planted among the Water Lilies, to rise above the water.

## ARCHES, PERGOLAS, PILLARS, AND STUMPS

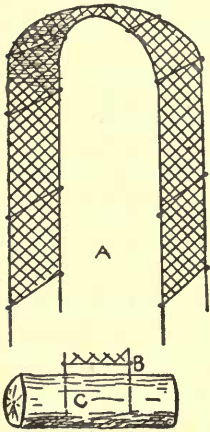
FEW garden lovers can have failed to observe the remarkable rise in popularity of that phase of flower gardening which is represented by arches and various kinds of rustic erection covered with plants. The modern Rose Garden, as we saw in the special chapter on Roses, is an informal feature. It does not consist merely of a few stiff rows of plants, but is diversified by arches and pillars. Thus broken up it is immeasurably more attractive than the stiff garden.

It is not every flower lover who can form a special Rose Garden, and Roses are not by any means the only plants suitable for rustic structures. There are places in every garden where something informal can be attempted, and there are many plants, including a few good Annuals, that can be flowered in a few weeks from inexpensive seed sown in spring, suitable for covering poles. This being so, we need have no hesitation in recommending this branch of gardening even to those whose means and space are of the most limited character.

It is really where the area available for gardening is the smallest that arches and pillars are the most useful. When a builder has to operate in a crowded city, where land is scarce, what does he do? He goes upward. He puts as much of his erection in the air, and spreads as little on the ground, as is consistent with safety. The amateur who has a very small garden will seek the air also. He will not erect horticultural "skyscrapers," but he will increase the area for his plants by providing them with growing space above the ground.



Wherever a garden is divided into two or more sections arches become appropriate. One may be established at the entrance to each section. If a flower gardener cares to make several arches along a garden path, and connect them by top and side pieces of rustic wood, he can claim to have made a pergola. A pillar, in the gardening sense, is any tall single upright. A stump is a low, bulky portion of timber, with or without laterals, such as the bottom part of an uprooted tree. Pillars are admirable in Rose and other gardens. Particularly should they be used in gardens where there is no pergola, but only a few arches. Stumps will help materially in breaking up stiff outlines. They form suitable supports for semi-climbing Roses, Ivy, and rambling Nasturtiums.



WIRE ARCH

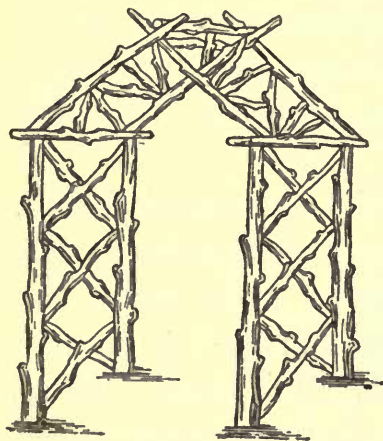
A, arch; B, iron spikes of arch embedded in charred block of wood C.

The arch is the most popular of the quartette which we are now considering, and we may well give a little special consideration to it. Broadly speaking, garden arches may be divided into two classes—metal and wood. Quite a large trade has sprung up during recent years in arches made of galvanised wire. One sees them stood outside the shops of ironmongers, forming a stock article, like fire-grates and door-handles. They are made in various sizes, and they cost only a few shillings each. Small wonder that “Mr. Subbubs,” whose mind has been much agitated as to the adornment of his five-rod garden, and who has seen a photograph of a flower-covered arch in a penny gardening paper which he has bought, pauses, and eventually buys.

We are not going to speak jocosely of the suburban wire arch. It is not exactly natural; it is more than a little stiff. During its early days, before it becomes covered with verdure, it is admittedly a somewhat harsh-looking and disagreeable object. But it serves a distinct purpose. It provides people who are not in a position

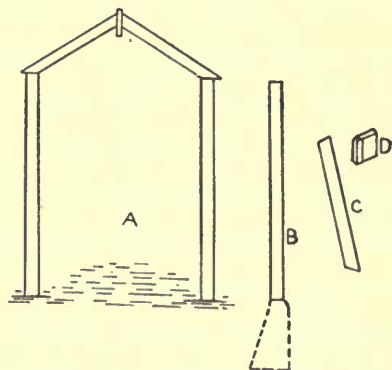
to get rustic timber with a convenient, and practically imperishable, erection, ready made, easily transported, and quickly fixed. But the ironmonger will sometimes be in a position to show a wooden arch, or such a thing will be on view in the horticultural departments that are now commonly to be found in most emporia in the cities. It will not differ very much in price from the wire arch; and if it is made of rustic, twisted, gnarled wood, and suitably stained, it will certainly look a great deal more natural than the wire arch.

Generally speaking, while most Roses and other climbers do very well on wire, they do still better on wood; and on all counts a wooden arch should be preferred to a metal one. It has one point of weakness—its base. No matter how strong the upper part of an arch may be, it is weak if the part which is to be put into the ground is untreated. The portion which is to be buried should be dressed with creosote or tar, or charred by laying the ends in a garden fire.



RUSTIC ARCH

In the country, where rustic timber is always procurable from wood-dealers, builders, nurserymen, or estate agents, the amateur will probably elect to erect his own arches. He will make a few inquiries, and ascertain where Larch poles and twisted oak can be got, then make his bargain and set to work. Constructing rustic arches is interesting work, and affords scope for taste and ingenuity. Care should be taken to fix the main uprights securely. Few inexperienced amateurs realise how thorough this job must



PLAIN ARCH

A, the arch; B, a pillar; C, portion of roof; D, tying-block, for centre of arch.



be. They accomplish it by removing a few spadefuls of earth. To do it properly a hole thirty inches deep must be made, and as a digger cannot get down that depth in a narrow hole, it follows that a good deal of earth has to be shifted in order to get each upright in. The hole will probably be quite as far across at the top as it is deep.

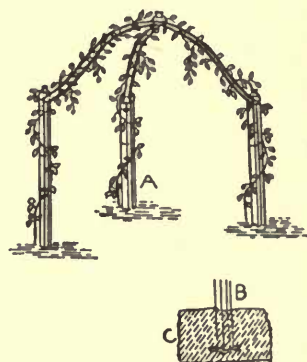
There is one great compensation for the not inconsiderable amount of labour involved in making such holes, and that is that an opportunity is afforded of improving the soil to a good depth, and so insuring benefit to the plants. The lower soil, near the butt of the pillar, must be well rammed. When half of the hole has been filled manure may be put in, and the top soil made firm on it.

In this connection, what applies to the uprights for arches applies also to those for pergolas. The necessity for it must be taken into account when the length of the pergola, and the distance apart of the main poles, are being considered. If a thoughtless decision is come to that the uprights shall be put in six feet apart, a great deal of labour in making holes is entailed, not to speak of the extra expense of so many poles. Nine feet apart is a fair and suitable distance.

All things considered, Larch poles should be preferred for the uprights, alike in the case of arches, pergolas, and pillars. The timber is admittedly not nearly so durable as Oak, but it has four great points in its favour: (1) It is straight; (2) it is natural-looking if its bark is left on; (3) plants take to it freely; and (4) it is cheap. If the bark is scraped off the bottom thirty inches, which is painted with Stockholm tar, the poles will last for several years, especially if they have been cut a good while when bought. If they can be got at a moderate price, poles not less than six inches thick at the base should be procured; eight inches will be better still.

The uprights of an arch may be a little shorter than those of

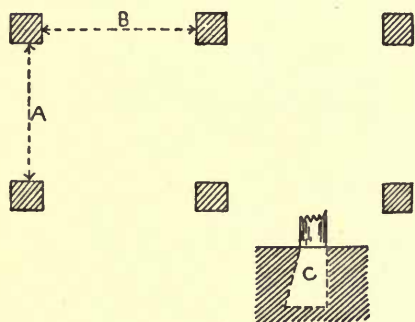
a pergola, the top poles of which are laid on the level. Six feet will do for the former, but seven feet must be the minimum for the latter. Isolated pillars should not be less than seven feet high. Strong Roses like Dorothy Perkins will be over the top of them in the first season. The side and top timbers of a pergola should be of smaller size than the uprights, both in the interests of weight and expense. The width of a pergola should be not less than eight feet. Both in regard to height and width it has to be remembered that the loose, rambling growth of the plant has to be allowed for; and the better the plants grow, the more freely they produce their flowering sprays, and the bigger the bunches of bloom, the more the space below and between the poles will be reduced.



TRIPLE ARCH

A, the arch; B, iron (or wooden) pillars embedded in block of cement C.

A pergola is a beautiful and delightful addition to a garden



PERGOLA—GROUND PLAN

A, distance between posts, or width; B, distance between side posts; C, ends of posts charred and made firm in the ground.

when well made and thoroughly clothed in verdure and blossom. It should not, if possible, be set in a mere strip of soil only a few inches wide, where there is barely room for the plants to be put in, but should be set in borders several feet wide; then not only is there abundant rooting area for the Roses, or whatever climbers are grown for covering the pergola, but also for dwarfier favourites. In this connection we may urge the planting or sowing

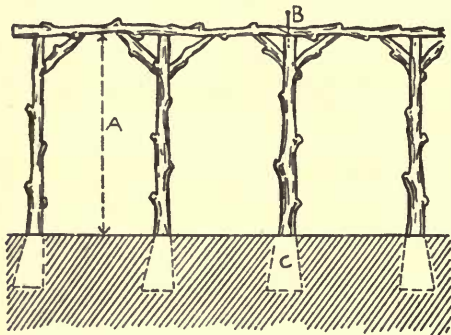
of such perfumed flowers as Lavender, Bergamot, Ten-week Stocks, Wallflowers, Mignonette, Sweet Peas, White Tobacco (*Nicotiana affinis*), Night-scented Stock, Scabious, Sweet Sultan, and Pinks



in the borders beside the pergola. With well-kept grass as a central path, the pergola is certain to become a favourite place in which to pursue meditative rambles; and those pleasant walks will become more enjoyable if sweet smells soothe the senses.

With respect to climbers, Roses are *par excellence* the plants for arches. A selection of suitable varieties is given in the special chapter on Roses, and we need only emphasise here the desirability of making certain vigorous, healthy, free-blooming varieties, such as Dorothy Perkins, Lady Gay, Crimson Rambler, Carmine Pillar, Wichuraiana Alberic Barbier, Ruga, Alister Stella Gray,

Grüss an Teplitz, and Mrs. F. W. Flight, the foundation. Further experience of Dorothy Perkins satisfies us that it is the most valuable of all climbing Roses, and that it may be definitely preferred even to Crimson Rambler, on the ground that it is superior in cleanliness, in rapidity of growth, and in the length of the flowering season. It is really impossible to adequately state the

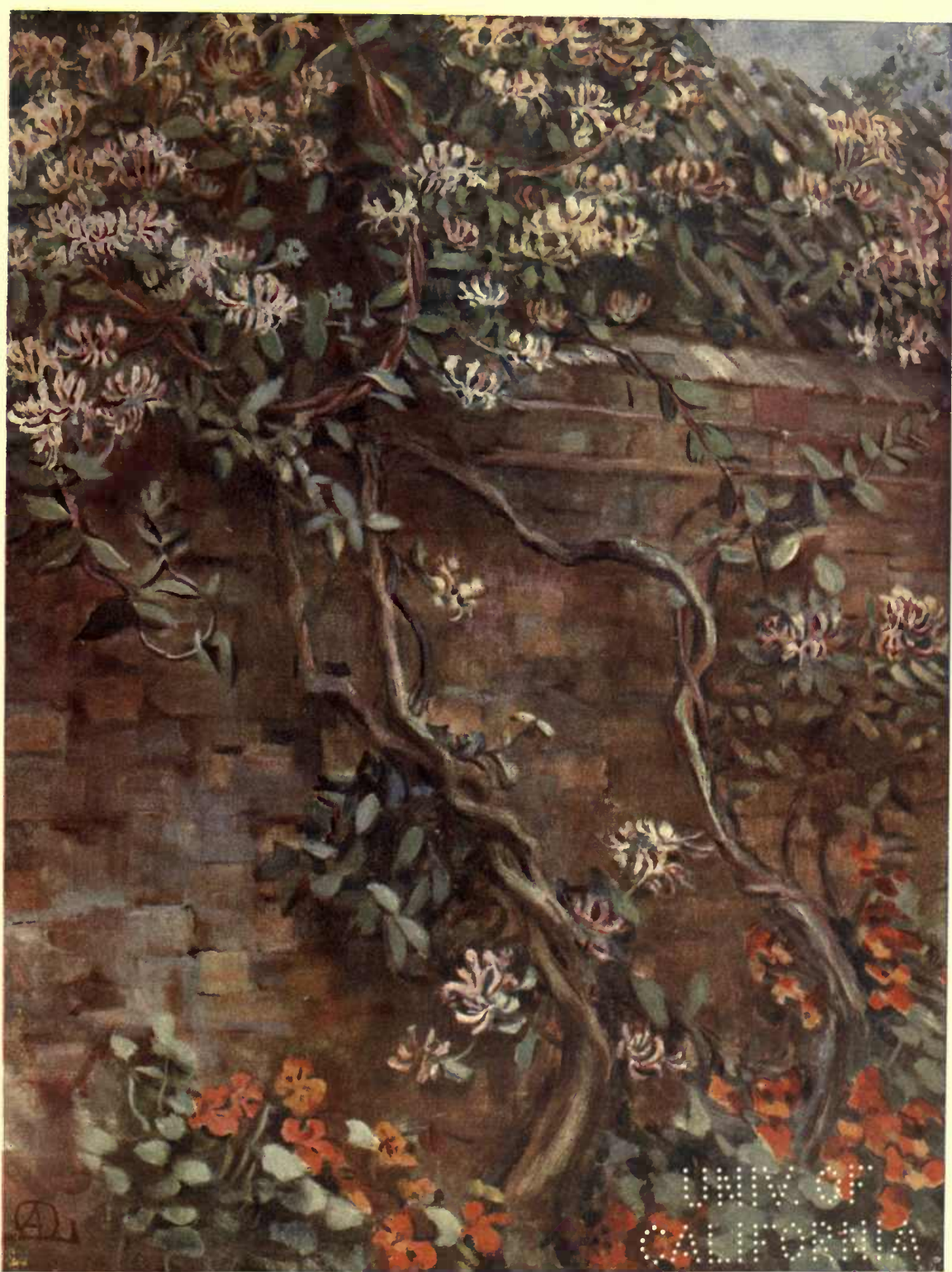


PERGOLA—SIDE ELEVATION

A, height from ground; B, spike to join top pieces of timber; C, thick ends of posts made firm in the ground.

value of this superb variety to amateurs.

Clematises, Honeysuckles, and Jasmines may be used as arch, pillar, and pergola plants. These are fully dealt with in the chapter on wall plants, but it may be noted that among the first, Jackmanii, deep blue, Madame Edouard André, red, and Snow-white Jackmanii are three of the most useful. Of the Honeysuckles may be named *Lonicera japonica flexuosa*, very sweet; and aureo-reticulata, the leaves of which are netted with gold. The first named is superior to the common Honeysuckle or Woodbine, *Lonicera Periclymenum*, but the latter may be grown if desired. Then there is the winter flowering Honeysuckle, *Lonicera fragrantissima*, which produces its sweet white flowers in February or March.



HONEYSUCKLE  
By Anna Lea-Merritt



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The most useful of the Jasmines is certainly nudiflorum, which produces its yellow flowers during mild spells throughout the whole of the winter, blooming in advance of the leaves. It is quite hardy. There is a large form of the common, white, summer-flowering Jasmine called *Jasminum officinale affine*; and there is a variety with golden leaves.

The following are other hardy perennial plants suitable for growing up poles: *Aristolochia Siphon* (Dutchman's Pipe), *Periploca graeca*, *Polygonum Baldschuanicum* (which produces glorious fleecy masses of bloom in summer and autumn), Tropaeolums of various sorts, and the large-leaved Vines, such as *Vitis Coignetiae*. *Cobaea scandens* (flowering in summer from seed sown in spring under glass), *Eccremocarpus scaber* (easily raised from seed), and the Passion Flowers (*Passifloras*) are not quite hardy, but may be used.

Among Annuals that may be sown out of doors are the Convolvulus and the Nasturtium; and of those best raised under glass and planted out in May may be named Canary Creeper, *Mina lobata*, Ornamental Gourds, and *Maurandya*. For fuller notes on these, see the chapter on Annuals.

Semi-climbing Roses like *Alister Stella Gray* and *Grüss an Teplitz* are good for large stumps. Tall Nasturtiums may also be sown at the foot of stumps, or Canary Creeper trails led over them. The small-leaved Ivies (see chapter on Walls) are also good for the purpose.



## BEAUTIFUL WALLS AND FENCES

IN urging the advantages attendant upon the formation of arches and pillars on owners of gardens, we remarked that they were particularly valuable in small places. The less ground area there is, the more desirable it becomes to create space above the surface. The same line of argument applies in connection with walls. The owner of a large garden can afford to ignore his walls—although he is not in the least likely to do so if he believes in having a beautiful home—but the “small man” cannot. Every inch of space is important. He has so little garden that he has to take advantage of every bit of support for plants, and he should turn to his walls and fences as a readily available source of accommodation for floral favourites.

It is particularly in town gardens that this applies, yet where plants are wanted the most they are used the least. Beautiful flowers can never have a greater influence than when relieving the desolating and depressing bareness of terrace houses in towns and suburbs; moreover, garden ground is almost invariably limited in such districts. But town houses are not, as a rule, covered. We may well ask if there is a good reason for this. Some persons may not plant anything to cover their houses because they only hold tenancies taken up for short terms. The reply to this is that tenancies taken up for short periods have a way of growing into long ones, and, in any case, it will be kind and generous to think of the pleasure succeeding tenants will derive from what we have done. Plants are so cheap that we can be unselfish without having to suffer very severely for it.

Other people may not plant because they fear the loss of the

flowers they grow, at all events in the front of the house. Well, we will not say that we would push generosity to the point of merely providing temptation for pilfering loafers and mischievous small boys, but let it be said that there are beautiful plants which are worth growing for their foliage alone.

Probably the most common cause of house fronts being bare, however, is that the people who occupy the dwellings have not acquired a love for gardening and an interest in plants. Such emotions are being rapidly spread, and as time passes more and more will think of the exterior as well as the interior of their homes—will want pretty plants on the outside as well as attractive wall-papers within.

There is no good reason why the back walls of town and suburban houses should not be covered. It is true that some beautiful plants that we should dearly like to recommend, such as the magnificent Crimson Rambler Rose, will not thrive, even with the most skilful and assiduous attention. But, as we shall see, there are other plants which will succeed.

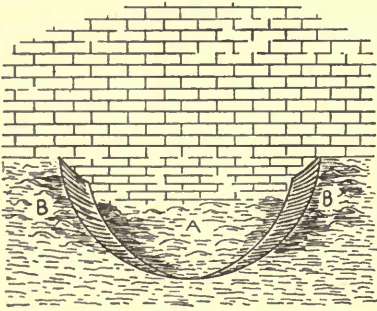
So far as country houses are concerned, it is really deplorable to see so many go bare, in view of the fact that tenancies are rarely very short, that wayside thieves are uncommon, and that there are plenty of beautiful and fragrant flowers which will thrive. Owners of property which they let should encourage tenants to plant by readily giving them permission when they leave to take away any plants which they put in if they desire to do so. Where the relations of landlord and tenant have been agreeable, not one tenant in fifty would dismantle a wall when he quitted a house. The great majority would assuredly leave the plants. Now, a well-furnished wall makes a house attractive to those who wish to hire; the value is increased by the beautiful external covering. Landlords and tenants have an equal interest, therefore, in adorning house walls.

It is delightful to throw a bedroom window wide open in the



morning and look down on a pretty and fragrant display of flowers. All country dwellers can taste this pleasure. Many make the mistake of planting the common Virginian Creeper, and then, instead of seeing Roses and Clematises, they will survey a thicket of aggressive shoots, with very little beauty about them, but with enough vigour to keep up a noisy fusillade on the panes during windy nights, and to mat themselves round the frames in a thick, objectionable tangle.

Before considering the best plants for walls, however, let us take into account the principal things that make for failure and



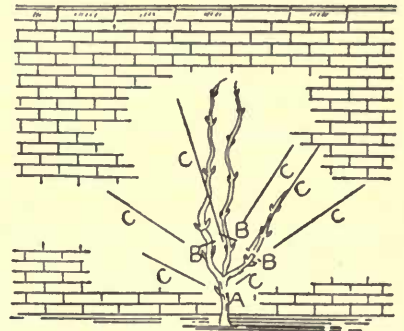
WALLS AND FENCES—LARGE, DEEP  
SITE UNDER A WALL

A, hole made by removing soil to B, B on each side.

success. To begin with, a wall site with a south or west aspect is generally dry. It is also hot. Heat is not in itself bad for plants, but heat in conjunction with drought is. A wall site is dry because the walls absorb a good deal of heat, because the soil is generally shallow and poor, and because a great deal of the rain which falls is thrown off by a projecting eave or by window-sills. The walls will absorb less heat

when covered with plants, and they will be covered with plants more quickly if the soil is made deep and rich. Here, then, is our first practical point—improvement of the soil. The soil-area under a wall is often only a few inches wide and deep; the “soil” itself is half stones. Deepen the area to at least two feet, increase it to a square yard for each plant, put in half-a-dozen good, heaped spadefuls of turfy loam and manure, and the whole prospect is changed. With the increased body of soil there will at once be more moisture and more food available, but it will be advisable to give occasional soakings of water (and they should be real soakings, not driblets) in summer, together with weekly applications of liquid manure.

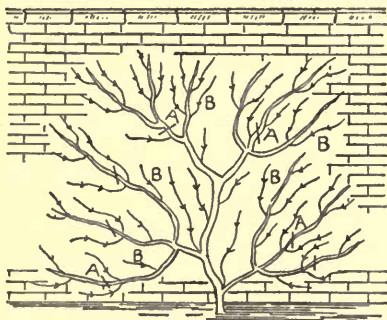
Our next important point is the period of planting. Failures often follow because the plants are put out in late spring, when the sun has become powerful. Many amateur gardeners begin their year's work at Easter, and (apart from the fact that it sometimes falls late) they find a good many odd but time-absorbing jobs to do before they get to the purchase of plants. Still worse, many do not start until the bedding-out season, which begins about the middle of May, opens. The May planting of wall plants does not give them a fair chance. With hot soil and a hot wall they are scorched up. Those who want to succeed with climbers and creepers should be encouraged to begin their operations earlier. The plants



CUTTING DOWN CLEMATISES

A young nursery plant

A, the main stem of plant; B, B, B, shoots to be cut off at dark lines; C, C, C, C, C, C, C, C, new shoots will then grow from the buds below B, B, B.



ANNUAL PRUNING OF CLEMATISES

A, A, A, A, shoots to be cut off at the dark lines; B, B, B, B, B, B, shoots to be allowed to remain on the plant. The above pruning suits the Lanuginosa type. The Jackmanii type should be cut down to within two feet of the ground after the flowering season is past.

ought to be put in by the end of March; then they will be nicely rooted by the time the hot weather comes, and will not merely be able to stand the heat, but will grow the better for it. What hurts the plant in one set of circumstances benefits it in another.

A third point is pruning. Popular wall plants like Clematis Jackmanii, and the majority of the Roses used for walls, are better for being cut right down after planting. Broadly speaking, an amateur can never do harm by cut-

ting back a newly-planted climber, but may see the plants do badly if it is not practised. Cutting down is not generally done, because a person objects to buying a plant and then throwing away seven-eighths of it; he thinks it wasteful. It is the reverse. If a plant



is cut back to within a few buds of the ground, the vigour of the roots will be concentrated on those buds, and strong shoots will result; moreover, shoots will come freely from the underground buds. If, however, the root action (necessarily imperfect, be it understood) has to operate on long, existing branches, the dormant back buds, which have so important a bearing on the future welfare of the plant, suffer, and they break weakly, or not at all. A few Roses with superabundant vigour, particularly Dorothy Perkins, will not only bloom abundantly on the original shoots the same year as planted, but form fresh ones of equal or even greater strength; they are, however, entirely exceptional.

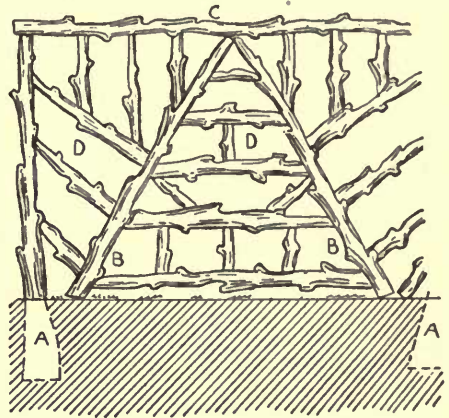
Given deep, fertile, moist (but not sodden) soil, early planting, and bold cutting back, wall plants will thrive in most places. Ivy need not be pruned.

Fences must not be overlooked. A rustic fence of Larch uprights and twisted Oak cross-pieces looks charming when covered with creepers. There is nothing better for clothing it than the little-known but beautiful Rose called Sinica Anemone. It is nearly evergreen, and produces a cloud of charming flowers. We are speaking here, of course, of a divisional, partially decorative fence within the garden, not of a main outside fence which has to repel cattle and sheep. That would have to be built closer, and provided with a thirty-inch depth of galvanised wire netting at the bottom to keep out lambs and rabbits. A climber-covered rustic fence may be used to form a division between flower and kitchen gardens, instead of a hedge or shrubs.

In a consideration of plants for covering walls we must place Roses first. Varieties suitable for walls were named in the chapter on Roses.

Clematises are very beautiful. There are different types of this flower, and some require more drastic treatment than others in respect to pruning. Few people prune Clematises at all. The plants grow unrestricted year after year. This is not the best

for *Jackmanii*, its white variety, and the splendid red *Madame Edouard André*. These sorts never do so well as when they are hard pruned every year. The flowering shoots of one year may be cut close back to their base in the spring of the following season, soon after they have started growing; and the plants will then push strong new shoots, which will produce far better flowers than would be borne on the weak shoots that would spring from the old flowering growths. The three *Clematises* named will probably meet the requirements of most people, but there are plenty of others available if wanted. *Fair Rosamond*, *Miss Bateman*, and *The Queen*, respectively blush, white, and lavender, are pretty sorts. They flower much earlier in the season than the others, and differ in respect to the method of flowering. Hard pruning must be avoided; all that is needed is thinning and trimming when the plants get crowded and tangled. The white *montana* is also a useful, though small, *Clematis*.



A RUSTIC FENCE

A, A, charred ends of upright posts embedded in the soil; B, B, strong pieces of timber for main supports between posts; C, top rail; D, D, small pieces to fill in intervening spaces.

The *Honeysuckles* and *Jasmines* named in the chapter on arch and pillar plants will also do for walls, as, indeed, will the other climbers and creepers referred to there.

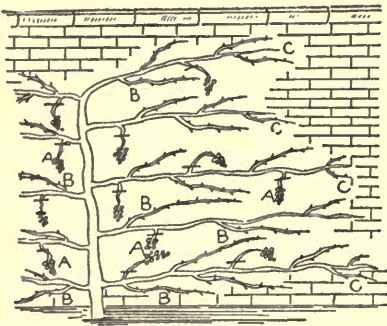
There is a beautiful shrub called the *Ceanothus*, which has pale-blue or lavender-coloured flowers, borne very abundantly in summer; and it may be grown successfully on south and west walls. The variety *Gloire de Versailles* is one of the best.

The double variety of *Kerrya Japonica* must not be overlooked when the claims of comparatively dwarf plants are being considered, as they will be for certain positions. This is the plant which bears double yellow flowers nearly as large



as Gardenias. It is very bright and cheerful, and it is easily grown.

*Wistaria sinensis* used to be a great favourite in years gone by. It is perhaps less frequently planted now than it was once, owing to the increase in the use of Roses for walls. The plant grows too slowly in its early days to suit those people who like quick effects. When thoroughly established it moves more rapidly, and it is very beautiful when well furnished with its long mauve clusters. Annual pruning to the old wood is good, as it encourages strong new breaks and large bunches of bloom.



PRUNING WISTARIA

A, A, A, A, flowering shoots to be cut back to one or two basal buds; B, B, B, B, B, strong young shoots which should not be cut; C, C, C, C, weaker shoots which should be cut out.

Of foliage plants for walls the most popular is the Virginian Creeper—not the common, which sprawls all over the place, harbours sparrows, and finally casts its leaves late in summer and presents an ugly array of long, bare stalks, but Veitch's variety, popularly known as *Ampelopsis Veitchii*, but now called by botanists *Vitis inconstans*.

This valuable plant grows as well in town as in country gardens, is of neat habit, clings tightly to brick or stone walls by means of its own suckers, clothes the walls in a pleasing mantle of green in summer, and changes to a warm red in autumn.

Ivy is, of course, seen on many old buildings, and on not a few modern ones, but we doubt if it is as extensively planted nowadays as it was in the days before *Ampelopsis Veitchii* came to Great Britain. However, it is still a popular plant, and there are many beautiful forms to choose from, nearly all varieties of the common Ivy, *Hedera Helix*. Those who want a very quick-growing sort might choose the Irish, *canariensis*, the leaves of which are five-lobed. Those who want a very large-leaved



PAPHIOPEDIUM (CYPRIPEDIUM) CURTISII

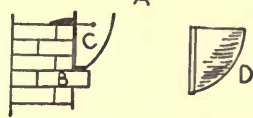
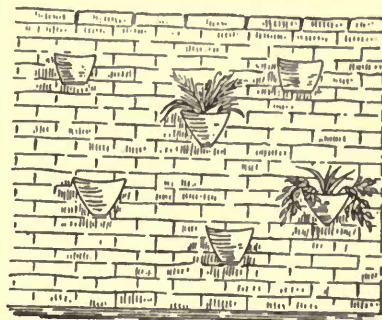
By A. Fairfax Muckley





variety should select *Raegneriana*, which has heart-shaped foliage. Any one of the three named (including the common) will cover a large area more quickly than the small variegated-leaved sorts; but these are extremely beautiful, and any person who is not in a desperate hurry to get his walls covered, but takes pleasure in watching steady development, should grow one or two of them. *Rhombea* and *variegata* are two of the best; they have green leaves with white margins.

There is another aspect of wall gardening than that of covering house walls with creepers, and it is to establish dwarf plants in the face, or on the top, of low walls. Some enthusiastic flower-lovers go so far as to drive long spike nails into the face of such walls, in order to provide partial support for small rockery stones, which are then cemented on. By adopting this plan quite a charming effect can be produced. If stones with a hollow upper surface are selected, they will hold enough soil to keep such plants as *Sempervivums*, *Sedums*, *Saxifragas*, *Campanulas*, *Arenaria* (Sandwort), *Arabises*, *Aubrietias*, Dwarf *Phloxes*, *Iberis gibraltaria* (perennial Candytuft), and Cheddar Pinks flourishing. Nor must the Wallflowers and Snapdragons be overlooked; they are natural wall plants.



FORMING POCKETS ON THE FACE OF WALLS

A shows pockets on the face of a wall; B shows section of wall with brick or stone so built in as to form a platform for pocket C to rest on. The pocket is held securely to the wall by means of a nail driven into a wooden plug as shown. C shows end or side face of pocket.



## ORCHIDS

As a class, Orchids are the most refined in texture, the most dainty in colouring, the most remarkable in structure of all cultivated plants. They include some of the largest and some of the smallest, some of the most richly coloured and some of the most delicately marked, some of the sweetest, and some of the most fantastic of flowers. Small wonder, in these circumstances, that they are full of interest, and that they have a very large circle of admirers.

Most of the Orchids are exotic, but there are a few British species, notably *Orchises latifolia* (Marsh Orchid), *maculata*, and *mascula*; and *Ophrys apifera* (Bee Orchis), *aranifera* (Spider Orchis), and *muscifera* (Fly Orchis); and the pretty "Lady's Slipper," *Cypripedium Calceolus*. Some of these grow in cool, moist places, but the majority in shady spots on chalky uplands. These British species are cultivated occasionally, but as a rule they are not regarded with so much interest by the gardener as by the botanical student, who loves to come upon them in his rambles, even though he may have discovered them many times before.

In view of the immense number of different kinds of Orchids, we can do no more in this chapter than give a general sketch of the class, and of its cultural requirements, referring those who want to make a close study of it to standard works, such as *Orchids, their Culture and Management*, by William Watson; *The Book of Orchids*, by W. H. White; and the *Orchid Guide*, by F. Sander. Also to exhibitions of Orchids, such as those of the Royal Horticultural Society, the dates of whose shows can be got from the Horticultural Hall, Vincent Square, Westminster; and to the larger Botanic Gardens, like Kew.

In the mind of the general public, Orchids are all extremely expensive plants, and require costly structures and highly trained men to grow them. This impression has grown up as a result of the custom which the newspapers have of publishing the records of sensational sales. As a matter of fact, high prices do not rule among Orchids. Many are as cheap as Carnations. Every now and then a rarity appears, either through importation or hybridisation at home, and then competition among wealthy amateurs and dealers runs the price up, perhaps, to several hundreds of pounds. But high prices are paid at times for special pedigree rams or bulls, and they do not make sheep and oxen, as a whole, expensive.

In these days of great plant emporia, keen competition among tradesmen, and auction sales, even Orchids are cheap, and the matter of cost need never deter a person who wants to grow some.

The question of accommodation is more serious. It is true that there are several beautiful kinds which will do well in a cool house, and some may even be associated with other plants in a general greenhouse; but if a representative collection of the principal Orchids is to be grown successfully, not only will a special house have to be provided, but it will have to be divisible into compartments, because the different genera vary a good deal in the degree of heat they require.

The Orchid specialist divides his plants into four sets, or, to put it in another way, he has four types of house in which to accommodate his favourites. He calls the first the "cool house," and it approximates to the ordinary "greenhouse" of the general gardener; in it *Odontoglossums* and some of the *Cypripediums* will thrive; the night temperature in the winter ranges from 45° to 50°, and the day temperature is 10° higher; in summer the night temperature may range from 55° to 60°, with a corresponding day rise. The second is the "intermediate house," of which the temperature is about 5° higher than that of the cool house; if



there is no special *Cattleya* house the temperature of the intermediate house may range  $10^{\circ}$  higher than the cool house. The third is the "*Cattleya* house," of which the temperature averages  $10^{\circ}$  higher than that of the cool house. The fourth is the "East India house," which must range at an average of  $15^{\circ}$  higher than the cool house.

It is not absolutely necessary that every Orchid grower should possess four houses; such an elaborate equipment is only necessary when Orchids are being specialised. And specialising Orchids is somewhat of a luxury. By the time four substantial houses have been erected and furnished a good deal of money has been spent. A person who is sufficiently well off to afford what is required can also afford the services of a trained grower, in whose experienced hands we can leave him, being certain that he will benefit more from practical advice on the spot than from any which we can give him in these pages.

We must not, however, dispose of the general amateur so lightly. He cannot scatter big cheques about among horticultural builders and Orchid specialists. He cannot drop into an auction room during the luncheon hour and bid in hundreds of pounds for a rare species. Our advice to those amateurs of moderate means who want to devote a good deal of attention to Orchids is that they build one moderate-sized house, and divide it into two compartments, one of which is kept warmer and moister than the other. They will thus be able to grow several of the most beautiful kinds, which we will now proceed to consider. The four most important genera of Orchids are:—

Cattleya.	Cypripedium.	Dendrobium.	Odontoglossum.
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Genera that are not quite so important, yet beautiful and desirable, are:—

Aerides.	Laelia.	Oncidium.	Saccolabium.
Angraecum.	Lycaste.	Phaius.	Vanda.
Epidendrum.	Masdevallia.	Phalaenopsis.	Zygopetalum.

We have here named sixteen genera—four of the first importance, and twelve of the second.

All these Orchids are divisible into two classes—those which grow on blocks or rafts, or get most of their sustenance from the air, and are termed epiphytes; and those which grow in soil like ordinary plants, and are consequently called terrestrials.

The vast majority of those who start Orchid-growing do so with imported plants, which arrive in a dry—or what appears to be a dry—state. We may very well begin our cultural hints with a few remarks on these imported “pieces,” as they are called. Some of the kinds will have pseudo-bulbs—which are greyish-green swollen growths coming between the roots and the leaves—and others will not.

Taking Cattleyas first, we may say that they have pseudo-bulbs. They are grown in pots, but the compost used is not the loam, leaf-mould, decayed manure, and sand which make up most potting mixtures; it is crocks, sphagnum moss, and peat. The crocks (pieces of broken flower-pot) should be clean. In

dealing with imported pieces, which require to be freshened and stimulated into growth before they are fully potted, only crocks need be used; and if they are kept moist, the plants will soon start in the temperature which has been indicated as desirable for them. They may be kept upright by means of a stake firmly fixed in the crocks; the plant should be securely attached to it, as if loosely tied, and subject to shaking, they would be slow in rooting. It is very desirable that a moist atmosphere be maintained.

As soon as the plants have started vigorously, both at top and base, they may be fully potted. At this operation the other ingredients come into use. First of all, the pots are filled two-thirds up with crocks, and then a layer of sphagnum is placed on.

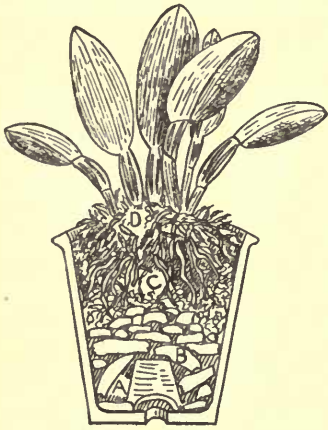


ORCHIDS—AN IMPORTED PIECE  
OF CATTLEYA



Stake the plant securely, and then with the fingers pack a mixture of fibrous peat and sphagnum, two-thirds of the former to one of the latter, among the roots, and finish off a little above the top of the pot. It is well to use a fairly large pot—one that will permit of extension for about three years—as frequent repotting is undesirable.

Throughout their growing season Cattleyas love abundance of moisture, both at the roots and in the atmosphere. Given this, in a light, airy house with a temperature of 60° (night) to 70° (day)



ORCHIDS—POTTING AN ORCHID

- A, small empty inverted flower-pot;  
 B, crocks; C, peat, charcoal, &c.;  
 D, sphagnum moss.

throughout the summer, the plants will grow rapidly. They will be the better for light shade in very bright, hot weather. When the growth is complete very little water will be needed. So long as the pseudo-bulbs keep fresh, and show no signs of shrivelling, the plants will be all right, even if they are kept without water for two or three weeks. With the treatment indicated the plants will bloom well.

The flowering season of the Cattleyas varies with the species. Some, and amongst them the small fragrant yellow *citrina*, bloom in spring. One of the best known is *Mossiae*, of which there are many beautiful varieties. This grand Cattleya is imported in enormous quantities, and is very cheap when bought at the auction sales. The body colour may vary from white or blush to deep purplish red or crimson. *Mendelii*, white tinted with rose, is another good species, and of it also the varieties are numerous. Both these bloom in late spring and early summer. *Trianae* is a magnificent winter-flowering Cattleya, with a bevy of lovely daughters. The colour is variable; it may be white with a purple lip. *Labiata vera* is an autumn bloomer, and also has a large number of fine forms. It is rose, mauve, or purple, with yellow.

The Cattleyas have been largely crossed with the Laelias, and some beautiful hybrids have resulted; but they are mostly somewhat expensive.

The Cypripediums, or Ladies' Slippers, are the least brilliant in colouring of our quartette of leading kinds. They do not possess the rich purples of the Cattleyas, or the soft pinks and yellows of the Dendrobiums, except in the case of one or two species, notably *spectabile*, which may be grown out of doors. The feature of the Cypripediums is the delicate harmony of browns, and purples, and bronzes, and silvers. The colours are all quiet. They do not dazzle. They do not arrest the eye. Nine persons out of ten who make the acquaintance of these Orchids would be struck by their quaint form, and not by the colour.

In spite of the fact that Cypripediums are the least brilliant of Orchids, they are among the most highly esteemed by specialists. They had a special vogue a few years ago, and it has not yet died out. Enormous sums were paid for special kinds. They deserve to enjoy particular favour among amateurs also, because they are easy to grow. Several of the best species thrive with very little heat; *insigne*, the most popular of all, is a pronounced cool-house plant, and is one of the few Orchids which may be grown in a general collection of greenhouse plants. Thousands of pieces are imported every year, and sold at very low prices at the auction sales which are held in most of the large towns. The colours of *insigne* are purple, green, and white; and it is a winter bloomer. There are several varieties, differing in colour, and they are desirable, but much dearer than the parent. *Spicerianum*, which has somewhat similar colouring to *insigne*, and is an autumn bloomer, is another species of the first standing which will thrive in a cool house. A third which may be named for this purpose is *Schlimii*, a very brightly coloured species.

Most of the Cypripediums require a warm house, and will not thrive in a temperature which falls below 55° at night in winter.



For the most part they do not have a decided resting period, as the majority of Orchids do; *bellatulum* is an exception, however, to the general run of the species in this respect. A few of the most notable of the tropical species are *barbatum*, purple, green, and white, a spring bloomer; *bellatulum*, white, purple spots, late spring; *Boxalli*, purple and green, winter; *caudatum*, brown, green, and yellow, spring; *Charlesworthii*, green, rose, and white, autumn; *Fairieanum*, purple, green, and white, autumn; *Lawrenceanum*, purple, brown, green, and white, spring; and *Rothschildianum*, purple, brown, yellow, and white, spring. There are a great many splendid hybrids, as the *Cypripediums* have been more largely crossed than any other Orchids; *Leeanum*, *Harrisianum*, *Morganiae*, and *Sedeni* are four of the best.

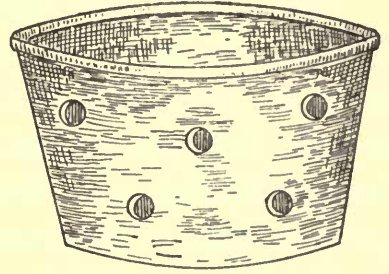
Imported pieces should be put into small pots with crocks, and the latter kept moist. With heat and atmospheric moisture they will soon start, and then they can be given some sphagnum moss and fibrous peat. They are terrestrial Orchids. They love a moist atmosphere, and must be shaded from strong sun.

*Dendrobiums* are exceedingly beautiful epiphytal Orchids, uniting graceful growth with free blooming and exquisite colouring. The flowers are not so large as those of the *Cattleyas*, but in the species *thyrsiflorum* they are borne in large, massive spikes bigger than the largest *Hyacinths*, and drooping. This blooms in spring, and the colours are red and yellow. *Nobile* and *Wardianum* are the two most popular *Dendrobiums*. The former is purple, rose, and white; the latter purple, orange, and white. Both bloom late in winter. There are several charming varieties of *nobile*, but variations of colour may show themselves in the flowers of different imported pieces. *Devonianum*, purple, orange, and white, spring; *formosum giganteum*, yellow and white, spring; *Phalaenopsis*, purple and mauve, several varieties, an autumn bloomer; *Pierardii*, white, spring; and *superbum*, purple, spring, are all pretty *Dendrobiums*—in fact, the genus abounds in attractive species. They have

not satisfied specialists, however, and a number of hybrids have been raised, very beautiful in many cases, but dearer.

Dendrobiums are not difficult Orchids to grow, and they are certainly one of the kinds which the beginner should choose. There are, however, considerable differences of habit amongst them, and while those of erect habit, like *nobile*, can be conveniently grown in pots, others, which droop or, like *Phalaenopsis*, need to be near the light, may be grown in baskets made of Teak. The noble *thyrsoiflorum* thrives in an Orchid pan, which is a wide pot perforated at the sides with large holes; these pans may also be used instead of baskets, and suspended, if desired.

Imported pieces of Dendrobes should be treated much in the same way as Cattleyas—that is, started in crocks in a moist, close house, and then potted in crocks, sphagnum moss, and fibrous peat. Pieces of charcoal are commonly incorporated in potting large plants. They like heat while making their growth, and should therefore be put in the warmest house available.



ORCHIDS—AN ORCHID PAN

When, however, they cease producing fresh leaves, which may be taken as an indication that the resting period is at hand, they should be put in a cooler house, and given little water.

The last of our quartette, the *Odontoglossum*, is a magnificent Orchid. The flowers combine large size with beautiful colours. The most popular and important species of all, *crispum*, or *Alexandrae* as it used to be called, is a glorious plant. The flowers, which are produced freely in spring, are of exquisite shape and refined texture. The colours, though not brilliant, are charming; and the white or ivory body is frequently broken by bars of brown. The species is largely imported, and pieces can be bought at the price of ordinary herbaceous plants. Forms with special markings have sometimes a high value, and as they



occasionally appear quite unexpectedly in an importation that is supposed to consist only of the common species, there is an added zest in buying and flowering imported lots.

The immense importance of this Orchid lies in the fact that it is very easily grown, and thrives in a cool house. It is quite an amateur's plant, and an extremely beautiful one. We do not say that it can be grown successfully by any amateur in a mixed greenhouse; that is not the case; but it is quite tractable in other respects. It is one of the plants which a person may choose who has not much experience of Orchids, and who is prepared to set apart a house, large or small, for a carefully chosen selection of pretty but easily grown kinds.

Perhaps the next most important *Odontoglossum* is that which botanists tell us should not be classed as an *Odontoglossum* at all, but a *Miltonia*, namely, *vexillarium*. This species, with its large, flattish, soft rose flowers, which are borne in great abundance, is very attractive, and thrives in a cool house. There are many varieties both of this and *crispum*, and the price varies according as they are rare or common.

Other species which may be named are *Cervantesii*, dwarf, blooming in spring, blush, with brown rings; *citrosimum*, dwarf, a spring bloomer, pink with rose and yellow lip; *grande*, dwarf, an autumn bloomer, yellow and brown; *Hallii*, tall, flowering in spring, chocolate and yellow; *luteo-purpureum*, spring and early summer, purplish brown and yellow; *nobile (Pescatorei)*, medium height, spring-blooming, blush, purple spots, yellow crest; and *triumphans*, tall, spring and early summer, yellow and brown. There are many varieties of the two last.

Some of the most beautiful *Odontoglossums* are of hybrid origin, being the result of crosses made by British and Belgian florists between well-known species. For the most part they are expensive.

Assuming that imported pieces are bought, as being inexpensive, and easily developed into beautiful plants, they may be put

separately into small pots, preferably in the Bracken rhizomes from fibrous Orchid peat. This material can be bought from many florists, and from horticultural sundriesmen. If the plants are kept in a cool, moist atmosphere, protected from bright sun, and kept just moist, they will soon break into growth, and may then be potted in a mixture of fibrous peat and chopped sphagnum moss in equal parts, with a good sprinkling of crocks. Repotting should be done either in early spring or early autumn. When new roots are forming the plants quickly establish themselves. Repotting during hot summer weather is not safe. Never give large shifts. The base of the pseudo-bulbs should be above the level of the rim of the pot. Any old, worn-out pseudo-bulbs may be cut away.

If a house is to be built for the plants, it should be provided with abundant means for ventilation, and with sufficient piping to maintain a minimum night temperature of 45° in winter. At that period growth will not be active, but at the same time the plants will not be entirely quiescent, and they must not be kept entirely without water, or shrivelling of the pseudo-bulbs will take place, and failure result.

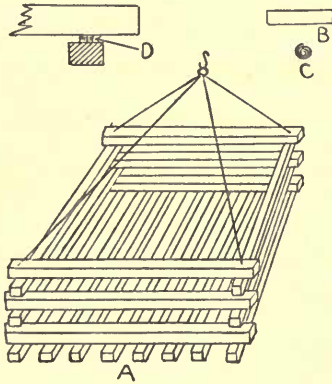
During summer the plants will take a good deal of water, and what is more, will appreciate a humid atmosphere. Dry air does not suit them. The pots, stages, and floors should be damped several times a day during very hot weather, the ventilators should be quite open, and shading should be provided. The material for breaking the sun should be fixed a few inches above the glass.

Space will not permit of fuller details of the cultivation of the various kinds of Orchids. We have touched on a few of the principal points, and practical experience and careful observation will help the beginner further on the road to success. He will have gathered that most of the principal Orchids, however they may differ in their requirements in respect to heat, love a moist atmosphere, thrive in peat, sphagnum moss, and crocks; and,



growing mainly through the summer, resting in winter, and flowering in spring, need plenty of water at the former season and little during the winter. He will have learned that in addition to leaves and roots they have bulbous protuberances between, called pseudo-bulbs, and that the plants will be all right if these are kept from shrivelling throughout the winter.

Some Orchids have no pseudo-bulbs, and of these may be named *Aerides*, *Phalaenopsis*, *Saccolabiums*, and *Vandas*. Care is needed in dealing with imported pieces of these, as they are often very shrivelled when they arrive. They should be potted in crocks surfaced with sphagnum, put into a warm house, kept only just moist until they begin to grow, shaded, and any flowering spikes which they throw up prematurely promptly removed.



ORCHIDS—AN ORCHID BASKET

A, the basket; B, small strip of lead;  
C, small strip of lead rolled up  
neatly, D, round the basket wire to  
keep the bars slightly apart.

When the amateur has got together a fairly good collection of Orchids, and acquired skill in managing them, his houses will be among the most attractive of any that he or his garden-loving friends possess. There will be flowers of exquisite texture and the most refined colouring for several months. And the houses will be varied. Some of the plants will be growing in pots on the stages, and others in baskets hanging from the rafters.

Two or three of the hardy Orchids are well worth growing, and a special word of praise may be devoted to *Cypripedium spectabile*, which is a plant of great beauty. There is a white variety of it that is equally desirable. These lovely plants enjoy coolness, shade, and humidity. They would fail in dry soil on the summit of a sun-baked rockery, but succeed in a shady, damp spot at the base. They may be procured from dealers in hardy flowers and planted in spring.

## THE CHRYSANTHEMUM

THAT mightiest of all the epoch-making movements of the twentieth century, the awakening of Asia, in particular the rise of Japan and her alliance with Great Britain, has given new interest to those plants which originally came to us from the Far East. It is true that the rise and fall of dynasties, the aggrandisement of some states and the decline of others, the ebb and flow of the turbulent stream of world politics, leave the professed devotee of flowers unmoved. He lives, serene and contented, in a little world of his own. He is obsessed by the future development of the flower which he specialises; he has no thought for its past. But others love to learn all about the flowers which they grow—whence they came, what they were like when history first took them into account, and the part they played in the life of the nation which gave them birth. Imagination seeks play. It conjures up pictures of the contemporary life of the early stages of popular plants. It sees through the murk of drear Western November days the warmth and colour of the lands of the East.

The Chrysanthemum is the Golden Flower, the national floral emblem, of Japan. With the island warriors whose martial prowess has been proved within recent years on the bloodstained fields of Manchuria it holds the place that the Rose does with the allied island race of the West. This fact must have its interest for us. Second only to the Rose as a popular flower in Great Britain, the Chrysanthemum stands first with the highly trained, progressive, ambitious Pacific nation whose future is bound up so closely with our own.

As we see the flower in its most impressive form at our



exhibitions to-day it is, of course, vastly different from the little blossom which first came to us from the East. That which modern florists call the Japanese Chrysanthemum is represented at the shows by a huge flower, nine or ten inches across and as much deep, perfectly double, and a mass of long florets. The colour may be crimson, amaranth, rose, buff, pink, yellow, or white. Chrysanthemum indicum, the forerunner of all this floral glory, was a small single yellow flower, little more than an inch across. If it were placed alongside one of the gorgeous leviathans of the champion cup winner, the contrast would be so great that a common origin would appear to be incredible. The more complete the difficulty of associating the two, the greater the tribute to the work of those florists who have developed the large double from the small single with long, devoted, unwearying labour.

But the modern Japanese Chrysanthemum is only one of a large number of types—the most important, certainly, yet still only one. In addition to it we find Incurved, Reflexed, Pompon, Anemone-flowered, Pompon-Anemone, Large-Anemone, Single, Thread-petal, and Hairy sections. There are, therefore, ten distinct classes. A further division is made in connection with the flowering season; thus, there are early or summer-blooming Singles, Pompons, and Japanese as well as the normal autumn-flowering types. Truly, the cross-fertiliser has done remarkable work with the Chrysanthemum.

It is a platitude to say that the Chrysanthemum is to autumn what the Rose is to summer. Neither flower need be considered as the plant of a season. We are only too glad to get Roses in autumn, and we are delighted to get Chrysanthemums—garden Chrysanthemums, that is—in summer. The Chrysanthemum is a plant of such commanding intrinsic merit and value that it would be extensively grown even if its chief flowering season were July instead of November. It would come into direct rivalry with the wonderful beauty of the Rose, the Carnation, and the Sweet Pea, if

it bloomed in summer; but if that slightly reduced its army of ardent followers, nevertheless it would still be a highly popular flower.

While we claim for the Chrysanthemum that it has beauty enough to enable it to become a floral favourite at any season of the year, we are far from pretending that its late flowering is an unimportant matter. The fact that this magnificent plant is at its best at a period when every other great flower is practically over is one of the utmost importance. It supplies our conservatories, our homes, with a magnificent array of material very cheaply at a season when, without it, flowers could only be got with considerable expense. Few blossoms are more delightful than light, fleecy Chrysanthemums for vases. They look charming everywhere.

Chrysanthemums are town as well as country plants. It is true that the Londoner's autumn bane—fog—often mars choice blooms that were being specially developed for exhibition. But one has only to visit the displays in the public parks of the metropolis to realise that the Chrysanthemum is a real town flower. These park shows are extremely interesting and valuable. They are open free to the public, and they are visited by thousands of the most unrefined people every year. That they exercise a real influence is proved by the increasing number of times that one sees Chrysanthemums grown in town gardens. If the people cannot grow Chrysanthemums under glass they grow them in the open air. In the course of a short railway journey through the south-eastern district of London, made with the object of visiting a large exhibition held by the National Chrysanthemum Society at the Crystal Palace one early November day, we observed Chrysanthemums in scores of otherwise dingy back gardens. The conditions under which they were growing were varied. One person had tried the big-bloom system of culture on outdoor plants, and his success was not inspiring. There were several feet of plant, several inches of flower-stem, and, impotently crowning all, a mere



rag of bloom! Another had plants in a window-box, and they looked perfectly happy. Others, and these the majority, had their plants in borders beside the party fences. The point is that the people were trying, and by no means without success, to grow *Chrysanthemums*.

Now, what will thrive in London may be expected to thrive in most towns. The fact is, the sulphur in the atmosphere, and the smuts, which are so bad for most plants, have but a slightly deleterious effect on *Chrysanthemums*. Even fog is not fatal, except from the exhibitor's point of view. It does not kill the plants; it does not really destroy the flowers. What it does is to cause "damping" of large blooms. They contract, droop, and lose their fresh colours. In the same house with large Japanese show flowers that have been spoiled by damping there may be plants of Singles carrying charming vase flowers.

The reference to plants in London gardens may raise an old question: Is the *Chrysanthemum* hardy? Inherently it is, certainly. It is true that if plants which have been raised from stock under glass, and succulently grown in pots, were left out of doors when cold weather came on they would probably be badly damaged by the first severe frost. The flowers would be spoiled, and the foliage would be discoloured. But that the *Chrysanthemum* is really a hardy plant is conclusively proved by the evidence of thousands of plants which have lived for years out of doors, passing unscathed through severe winters. The truth is that the *Chrysanthemum* is hardy or not according to the conditions under which it is grown. It is always well worth while to grow a collection in the garden, for late as well as for early blooming. Severe early frosts sometimes mar the flowers, but in most years no harm is done. If gardeners in Great Britain always hesitated because they were uncertain what the weather was going to be, we should not get half the fruit and flowers that we do now. We must trust to the law of averages.



MASDEVALLIA HARRYANA  
By A. Fairfax Muckley





The Chrysanthemum, we see, is a flower for all classes—for town as well as for country gardeners, for greenhouse as well as garden, for room equally with conservatory decoration. It does not give us great natural diversities in habit, like the Rose. We do not find Chrysanthemums of climbing habit. We do not find varieties suitable for rambling over banks, or varieties for covering arches. But the plant is easily grown and tractable, and with modifications in our system of culture we can get considerable variation in growth. Moreover, by a judicious selection of varieties we can get flowers for several months—from the garden in August and onwards, under glass up to midwinter.

When we come to a practical consideration of cultural matters, we may very well elect to begin with the methods of acquiring a stock of plants. Probably the initial step will be the purchase of a few plants from a nurseryman, and this is likely to become an annual occurrence, for we shall want to add more varieties to our collection; besides, new ones are always coming out.

It is well to order Chrysanthemums in the autumn or winter, even if they are not wanted until the spring, especially if novelties are being bought. The reason is that certain varieties, and particularly new ones, are in great demand, consequently there is a risk of not getting the sorts that are wanted unless they are ordered early.

Cuttings cost less than rooted plants, and are procurable in autumn; but those who buy in November have the care of the plants all through the winter. This does not matter to skilful growers with ample accommodation, but it does to beginners with only one small house, which is probably in a congested state. Amateurs who are in this position will be well advised to buy plants early for spring delivery. They will be quite safe in the hands of a respectable nurseryman. If the plants are received in March they will be sturdy little specimens, established in small pots, and well supplied with roots. We will refer to the best



treatment for them when we have got home-struck cuttings to the same stage.

Cuttings of Chrysanthemums may be inserted from November to July for flowering in the following autumn. This is a long period, and provides a considerable amount of latitude. But there is not much for the person who wishes to produce cut blooms of the highest exhibition quality. He must allow his plants the better part of a year. The leading exhibitors strike cuttings in November for winning silver cups in the following November.



CHRYSANTHEMUMS

A, a good cutting. The main stem and lower leaf must be cut off at the dark lines.  
B, a bad cutting, too weak.

Those who do not want to exhibit, and are hampered by want of glass accommodation, need not propagate till spring.

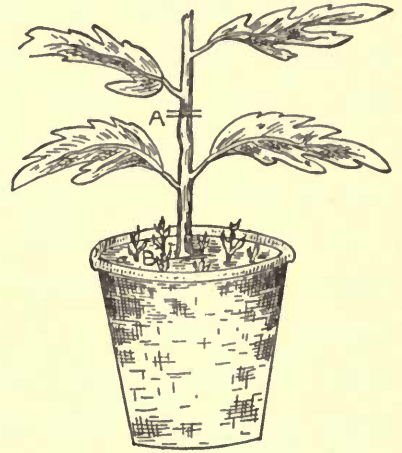
Let us trace the career of a plant "from the cutting to the cup"—the cup which often seems so near as we survey our own flowers, but so far when we have an opportunity of examining those of others.

The best type of cutting for November or December propagation is a short, sturdy shoot springing from the base of the plant. It is not, correctly speaking, a "cutting" at all, but a sucker springing from the stem or root-stock, below ground, and is pulled off with finger and thumb, not removed with a knife. Growers should keep a watchful eye on these basal growths. They come after the plant has done its duty by developing flowers. Top growth has come to an end, and bottom growth—reproduction—begins.

Tall plants in full bloom will have their base a considerable way from the glass, and this spells danger for the suckers. They will elongate in an endeavour to get up to the light, and become "drawn"—that is, long, thin, and weak. In that state they are very poor material for propagating purposes. They should be

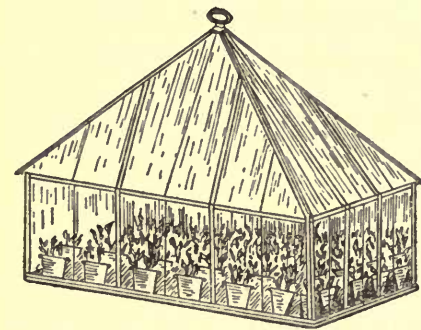
dwarf and sturdy, as already hinted. The object of the grower must be to take them off before they have time to "draw." Experienced men will always have an eye to the basal growths, however much engrossed they may be in the flowers; but amateurs are liable to overlook this all-important matter. The suckers should be removed when they are about three inches above the ground.

Suppose suckers have not come by the time the plants go out of bloom, what? It is unusual, but it may happen, and the way to meet the case is to cut the plants back to within a few inches of the pot—decayed flowers, leaves, stem all going, save a short stump. This procedure will enable the grower to bring the base



CHRYSANTHEMUMS—CUTTING BACK OLD PLANT

A, old stem cut back to within seven inches of rim of pot; B, healthy suckers growing suitable for cuttings.



CHRYSANTHEMUMS

Pots of suckers or cuttings under a handlight.

of the plant close to the glass. Let him give water if the soil becomes very dry, just as if the plant were in full growth, and suckers will surely come.

If there are plenty of small (say 3-inch) pots available, each sucker may have a pot to itself; otherwise, several may be put in a larger pot. In the former case one crock, covered with a little clean moss, over the hole will do for drainage; in the latter the pot may be one-third filled with crocks. Equal parts of loam and leaf-mould, with a tenth part of sand, will make a good compost. Should several suckers be put in one pot, insert them, equidistantly, round the edge, and be careful with the labelling, or all the names will get mixed up. The suckers



should be made quite firm by pressing the base in with a blunt stick.

It will expedite rooting if the pots containing the suckers can be placed together in a warm greenhouse and covered with a handlight. They root more quickly when kept close in this way than when exposed to the air, as evaporation from the leaves is checked, and the less of this that goes on until roots have formed to supply fresh moisture the better it is for the prospects of success. Of course, it is not absolutely necessary that air exclusion should be effected by means of a handlight. We mention this as a stock article specially made for the purpose. But many amateurs will make shift with contrivances of their own. One may enlist the sympathies of his wife, and borrow the spare tumblers. Another will make an enclosure by placing four squares of glass on edge, covering them with a fifth, and pasting strips of paper along the unions. A handlight (or a large bell glass if there are only a few pots to cover) is the most convenient, because it can be lifted and wiped if moisture condenses on it. If the soil is moist when the suckers are inserted it will probably not need watering until they are rooted, but it must not be allowed to get parched.

Directly growth begins water may be supplied, because it is certain that there will be roots ready to imbibe moisture, but over-watering should be guarded against. Moreover, the covering may be removed and air permitted to reach the plants. From this point they should have a position close to the roof glass of the house, in order to keep them sturdy, and air should be given whenever the weather is fine, but cold draughts should be avoided.

The plants will need transference to larger pots as soon as they have filled the small ones with roots, and may be shifted from 3-inch to 5-inch. Those inserted round the side of large pots should be placed singly in small ones directly they have grown sufficiently to begin crowding each other.

In a greenhouse the temperature of which does not fall below

45° the plants will make steady progress. At the end of March they may be put in a frame. The lights should be kept open during fine weather, and only closed during bad spells and at night. A mat or other thick covering should be available for throwing over the frame-light in case of severe frost. We have thus taken the young plant along to the spring, and brought it into line with others which may be bought at that time.

Throughout the spring an unheated frame is the best of all places for young Chrysanthemums. It keeps them dwarf and strong. They receive abundance of air. As the spring advances the lights may be removed altogether for long spells, only being replaced when bad weather threatens. Difficulties will begin, in the case of those whose accommodation is limited, when the plants call for fresh pots. With increased growth and larger pots frames become congested, and there is a risk of the plants becoming dangerously overcrowded. Rather than this should happen, the grower will be well advised to spread some ashes in a sheltered spot, stand a portion of the plants on them, and surround them with boards on edge. A few laths or Pea sticks supporting fish netting, or a sheet of waterproof paper stretched on a frame, will afford protection should the weather take an unfavourable turn.

We will dispose of the various repottings that will be needed together, it being understood that we are still considering plants to yield large flowers. If the largest pots available are 9-inch, the plants may progress to them by three stages—3-inch to 5-inch, 5-inch to 7-inch, 7-inch to 9-inch. The provision of various sizes

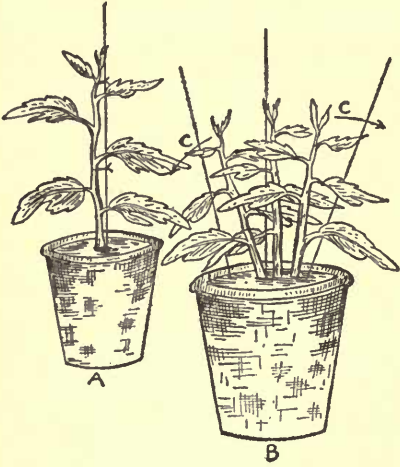


CHRYSANTHEMUMS—REPOTTING

A, ball of soil and roots of plant; B, new potting compost; C, C, space of about two inches left for top dressings; D, a potting stick, blunt at one end, slightly pointed at the other.



of pots, finishing with a fairly large one, makes the culture of show Chrysanthemums more expensive than growing them for ordinary decoration. For the latter purpose 3-inch to 5 or 6 inch, and from the latter to 8-inch, will do. This saves a shift, and utilises a cheaper pot, but an 8-inch pot is not large enough to yield show flowers of the finest quality; a 9-inch or 10-inch is needed. Even with the larger pot the soil at the first potting in June must be made very firm—in fact, it should be compressed with a rammer.



CHRYSANTHEMUMS—STAKING

A shows how to stake a young plant; B shows how to stake a specimen plant, or where three young ones are grown in a large pot; C, C shows how the stems should be spread out.

The compost should consist for the main part of fibrous loam from decayed turf. The quality of the loam has a considerable bearing on that of the flowers. The turf is best cut from an old pasture ten or twelve months before it is required for use, and stacked grass side downward. When potting time comes a fourth each of leaf-mould and decayed manure, a tenth of sand, and a thirty-second (one quart to each bushel) of steamed bone flour may be added.

If these ingredients are thoroughly mixed, and well rammed into the pot in a damp, but not sodden, state, a good supply of food will be provided for the plants.

At each repotting the pots should be carefully crocked. Too much drainage material is often put in, thus reducing the space for soil. One large crock over the hole, a few others evenly overlapping it, and half an inch of clean moss, insure perfect drainage without taking up much room.

The plants may pass the summer in the open air. A place should be found for them that is open to the sun and air, but is sheltered from rough winds. The pots should be stood on boards or sharp cinders to prevent worms getting in. Amateurs who are

away from home most of the day during the summer, and unable, therefore, to give the plants that incessant care in watering which is so important, may make a trench as though for Celery, lay in a bed of ashes, stand the pots on it, and place more ashes round them. This will not entirely obviate the necessity for watering, but by preventing the hot sun from striking direct on to the pots it will help to avert injury to the roots.

As the shoots move steadily upward they will call for support. This is easily provided in the early stages by one bamboo cane, but later on, when the plants have made their breaks, a single support will not be sufficient. A simple plan is to erect a common framework for a whole row of plants, and it may consist of two strong end uprights, driven firmly into the ground, lighter uprights at 6-foot spaces between, and parallel horizontal wires or cords stretched from end to end. The growths may be tied direct to these horizontals, or, better still, supported by short flower stakes which are tied to the horizontals in an upright position.

Apart from the question of disbudding, to which we will give special attention, the most important cultural operation throughout the summer is unquestionably watering. Plants that are properly watered will, other things being right, grow and flower satisfactorily; but all care and expense in providing good suckers, drainage, soil, and pots will be wasted if the watering is not correct. One day's neglect may irretrievably ruin all chance of winning a coveted prize. It is not that the plants will die, probably, but the buds may be injured, from the exhibition standpoint, beyond recovery. Drought is the thing to fear. If once the soil is allowed to get so dry as to break away from the side of the pot, leaving a distinct fissure, great harm will be done. The soil should really never become quite dry. It should not be sodden, but on the other hand it should not be parched. A moist or damp state constitutes the happy medium.

Except during wet or very cloudy spells, the plants will certainly



want at least one watering a day throughout the summer, and they may want two or three in very hot spells. A space of a couple of inches will be left at the top when the final potting is done, and if this is filled right up to the brim the supply will be sufficient to well moisten the soil right through. If there is a doubt as to whether water is wanted or not the pots may be rung with the knuckles, and if they emit a hollow sound water should be given at once. If, by any mischance, watering has been overlooked so long that the soil has broken away from the side, the pots should be stood bodily to the brim in a tub of water, and not be taken out until bubbles have ceased to rise and the soil has filled out again.

In October the plants should be placed under glass to flower. The actual date may depend upon the weather. In the absence of sharp frost or persistent soaking rains they may be left out until the middle of the month, but in most districts and seasons it is advisable to house them a little earlier. The house into which they are to go should be well cleaned betimes, so that there is nothing in the way of a prompt transference when the state of the weather renders it advisable.

The reason why it is advisable to leave them out as long as is consistent with safety, and with allowing time for the development of the flowers, is that the heavy dews benefit the plants. They will miss this fine and grateful moisture when they are first put into the house, and may show a tendency to sulk. If kept a little dry at the root for a few days, and given abundance of ventilation, they will get over that and start growing cheerfully again.

While they are swelling their buds, both in and out of doors, they will appreciate liquid manure. It need not be given for the first few weeks after potting, because the food in the soil will be ample to sustain the plants; but subsequently it may be given twice a week. Many of the advertised proprietary fertilisers, which are sold in small tins and bags, are excellent for Chrysanthemums;



LYCASTE SKINNERI  
By A. Fairfax Muckley



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in fact, some are prepared specially for this flower. Sheep droppings tied in a piece of old sacking suspended in a tub of water give a splendid liquid. Chemical fertilisers may also be used. One ounce of superphosphate and half an ounce of sulphate of ammonia in a gallon of water will be good. The different kinds which are used should be used by turns.

We have glanced at the general points of management other than training and bud development. Let us now consider these highly important matters. If a Chrysanthemum plant is to produce blooms up to exhibition standard, it must only be allowed to carry a very limited number. If its energies are spread over many flowers, they will be too small to win prizes. Not only flowers but branches also must be restricted. This means, of course, an unnatural course of treatment. If a plant is allowed to grow as it likes it will produce many shoots and many flowers. The blooms will be pretty and useful, but they will not carry off any silver cups.

In order to get a clear grasp of the system of training and bud management that yields exhibition flowers, we must hark back to the spring, when our young plants, raised from cuttings, were making steady progress in a frame. They will have one shoot, the main upright one, and no more. Some time in April or May a flower-bud will probably form at the top, and if, directly the grower sees it, he examines the plant, he will find three incipient shoots, or growing (not flower) buds just beneath it. This is called the "first break" of the plant. The early bud is of no use, and must be pinched off immediately, then the growths below will



CHRYSANTHEMUMS—THE FIRST BREAK

A, plant making first break. B shows the top of the plant. The bud forms at C, and this bud must be removed; then the shoots D, D, D grow rapidly, and must be duly staked.



develop into branches. As they grow up they will, of course, form leaves, and they will probably also commence developing side shoots; the latter must be removed as promptly as the first bud was, and the plant rigorously restricted to the three growths which have developed from the main stem, and which will carry the cup flowers that are presently to come and delight the world.

Assuming that the plant continues to make healthy progress, its next effort at bud production is likely to take place somewhere between the middle of July and the middle of August. The same condition will be observed with the three shoots as was observed with the one in May, namely, a flower-bud appearing with a cluster of incipient growths just below it. We do not, however, necessarily remove the flower-bud and preserve the growths now. We may do just the reverse. The new bud is called the "crown," and if it has come at the right time for the variety it will develop into a prize flower if it is preserved and the growths below it are removed. This operation is called "taking the bud."



CHRYSANTHEMUMS—TERMINAL BUD AND  
HOW TO "TAKE" IT

A, end of branch on which terminal bud B is borne; C, C, C, smaller side buds which must be removed while they are quite small; D shows result—the central terminal swelling satisfactorily.

Observe, we say "if it has come at the right time for the variety." "Are there, then," it may be asked, "differences in varieties with respect to the rate of development from the appearance of the bud to the maturity of the bloom?" Certainly there are, and it is these variations which constitute one of the great problems of Chrysanthemum growers. No rule can be given which will govern all varieties. If there could, growing prize Chrysanthemums would be a much more simple matter than it is now. Generally speaking, buds which come at the middle, or even the end, of July

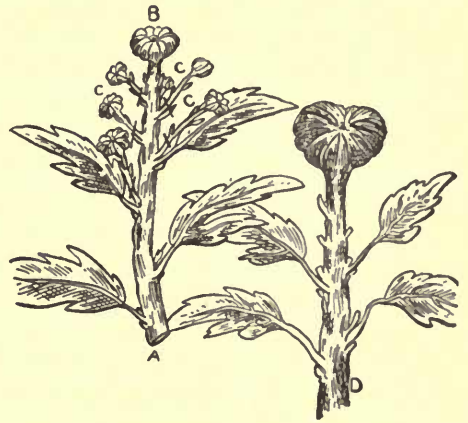
are too early. The middle of August is nearer the time for most sorts.

If the first "crown" bud comes too early it is pinched out just the same as the first "break" bud was, and the best of the incipient shoots below taken on, the others being removed. If this is done with each of the shoots it follows that the number of flowering branches will not be increased; there will still be only three.

There will be a much shorter lapse of time between the appearance of the second and third buds than there was between the first and second. It will probably be less than a month. The third bud will have the same appearance as the second, and it is called the "second crown." It is this "second crown" bud which is generally taken; in other words, more prize flowers are got from it than from any other. Occasionally it is sacrificed, the dis-budding process repeated, and the fourth or "third crown" bud taken. In still fewer cases no "crown" bud is preserved, but the plant allowed to finish with a cluster of buds, the best of which is taken and called the "terminal." Flowers from "crown" and "terminal" buds are generally quite different, although the variety is the same.

It will be seen that the matter of bud selection in Chrysanthemums is a somewhat complicated one, and requires considerable study. But if complex it is also very interesting.

How can a beginner in growing Chrysanthemums for exhibition learn how to manage the different varieties in order to have a number of them all at their best at one time? He can acquire



CHRYSANTHEMUMS—CROWN BUD AND HOW TO "TAKE" IT

A shows end of branch on which crown bud B is borne; C, C, C, side shoots which must be pinched off while quite small; D shows result—crown bud swelling satisfactorily.



knowledge in two ways: (1) By studying the hints which are given in the catalogues of the principal dealers in Chrysanthemums, in gardening papers, and in books on the flower; (2) by his own practical experiments, observations, and records. In his early days as an exhibitor he will certainly need guidance from men of greater experience. How necessary it is to master the question is shown by the fact that one expert, Mr. H. J. Jones, gave a list of no fewer than fourteen types. Here is his key:—

## TYPE

1. Pinch the tip out of the shoot about the first week of April, and secure second crown buds.
2. Pinch the plants during the first week of May, and secure first crown buds.
3. Let the plants break naturally, and secure first crown buds.
4. Let the plants make a natural break, and secure late crown buds (approximately the third to the last week in August).
5. Pinch the plants during the third week of April, and secure second crown buds.
6. Pinch the plants during the first week of May, and secure first crown buds.
7. Pinch the plants during the third week of March, and secure second crown buds.
8. Pinch the plants during the second week of April, and secure first crown buds.
9. Allow the plants to break naturally, and secure second crown buds, but propagate early in the year, or during December of the previous year.
10. Pinch the plants at the end of February, and secure first crown buds.
11. Stop early in February, and secure first crown buds.
12. Pinch March 1 for second crown buds.
13. Stop March 1 for first crown buds.
14. Stop first week in March, take up three shoots, stop again the last week in May, and then secure the first bud.

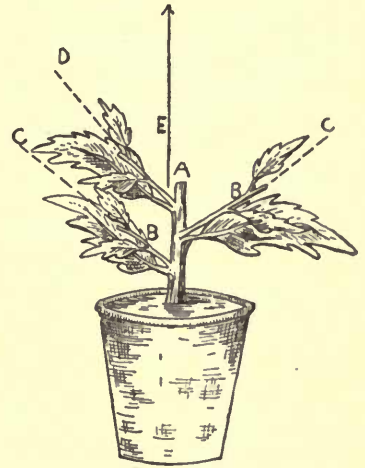
It will be seen that Mr. Jones anticipates the "first break" in a good many cases by stopping or pinching the young plants before it appears naturally. Although his system may appear cumbrous, it is really quite intelligible. In his own case he merely puts a letter to each type, and a corresponding letter to each variety when experience teaches him how to treat it, and he has a clear and plain guide. Probably no better plan could be devised for achieving the object of getting each member of a collection at its best during the first half of November, when most of the Chrysanthemum shows are held.

We will now give consideration to the cultivation of Chrysan-

themums for decoration, both under glass and out of doors. If we devote less space to these branches of the subject than to culture for exhibition, it is not because we regard them as of inferior interest and importance, but because the procedure, being simpler, can be described in fewer words.

No grower of Chrysanthemums should devote the whole of his conservatory space to plants grown on the exhibition system, for they are mostly rather tall and upright, and show a good deal of pot. He should grow some bush plants in addition, and not restrict them so severely, either in growth or buds. We do not say that he should simply strike cuttings, and then let the plants grow as they like; but he should content himself with a little stopping and dis-budding.

In the first place, the plants need not be raised so early as those intended for show blooms. Spring propagation will do quite well, and that is a great advantage, as it leaves more house room for other things that need it more. If suckers are available in spring they may be made use of, but if they are not, then young shoots from growing plants may be taken, or young plants bought for the purpose. When they have grown to not more than eight inches high the tips may be pinched off, and this will cause buds below to start; these will form shoots, and may be stopped in their turn when about four inches long, with the object of causing still more buds to break. The two pinchings or stoppings indicated will have the effect of causing the plants to form strong side branches, and thus assume a bushy habit. They will differ entirely from the big-bloom plants; they will



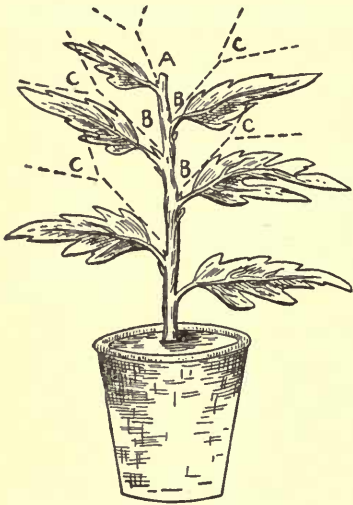
CHRYSANTHEMUMS—CUTTING DOWN

A, main stem cut down to cause later growth and dwarfier habit; B, side shoots growing, and duly stopped; C shows resultant new growth; D shows the top shoot if only one is to be retained and trained upright as shown at E.



be dwarfer and more spreading; they will have more branches. As a rule they will not require any further manipulation in order to make them into neat plants, but they may be pinched again at a later stage if necessary.

If buds show at the tips of the shoots early in summer they should be pinched out, except in the case of plants which are desired to bloom early. We will presently name some varieties that are naturally early bloomers, and others which will flower later.



CHRYSANTHEMUMS—STOPPING TO FORM BUSHES, &C.

A, main stem pinched; B, B, B, resultant side shoots; C, C, C, C shows result of second stopping—two or three branches from each one stopped.

When, with the flowering season approaching, buds are allowed to remain, the question will arise as to whether all which form should be allowed to expand, or whether the clusters should be thinned. It all depends on whether the grower's principal object is a handsome plant or a large quantity of flowers for cutting. If the former, he may thin the buds, allowing about a dozen flowers to each plant; if the latter, he may allow all the buds to remain. Disbudding, it should be remembered, means fewer and larger flowers.

A plan that is adopted by some growers is to allow plants to develop on one stem until the end of May, and then cut them down to within a few inches of the pot. This dwarfs the plants, and they will still produce large flowers if they are restricted to three shoots and crown buds are taken; if not, they will make nice bushes. The upper part of the severed branch can be treated as a cutting and struck. Plants raised thus in May, or even up to the end of July, make very useful short material for standing in front of groups of tall plants and hiding the large pots with a screen of foliage and flowers.

In former years it was only the large-flowered double Chrysanthemums which were grown in pots to any extent, but now single varieties are extensively cultivated in this way. They certainly make more graceful decorative plants than the large-flowered doubles. Most of them spread well and flower freely. The blooms are really like coloured Marguerites, or they may be likened to single Pyrethrums, which are so popular for spring flowering in the garden. They do not require any staking, as they are quite self-supporting. The everyday amateur with a small greenhouse or conservatory may be excused for shrinking from the complex and exacting study of growing Chrysanthemums in pots on the show system, but he need have no fear of trying the plants in the more natural way here described. He will find the plants very tractable, and when they are in full bloom his small structure will be very gay, cheerful, and enjoyable at a period when without Chrysanthemums it would be bare and devoid of charm.

Chrysanthemums are so beautiful for garden decoration that we find it difficult to understand why they are not used more. In part it is doubtless due to the fact that they are generally regarded as indoor plants, and not hardy. It is somewhat curious that the space which Chrysanthemums might have in gardens but for the belief that they are tender is generally given to Dahlias, which are distinctly less hardy. We have no desire to disparage Dahlias. They are beautiful flowers, and we have given them warm praise in another chapter; but we should certainly like to see Chrysanthemums more frequently grown in flower-gardens, even if the space devoted to Dahlias had to be curtailed somewhat.

There is no more attractive flower-garden plant than the brilliant Chrysanthemum. It combines graceful growth with beautiful and varied colours. Glorious masses of colour may be made by growing a few of the brightest varieties in groups. No small advantage connected with the plant is that it may be transplanted



from one place to another even when in bud, so long as the precaution is taken of well watering the soil first, and taking the plant up with a good deal of earth. The work is best done in showery weather. Plants so shifted soon re-establish themselves, and in a few days are growing freely. In due season they bloom well. The importance of this lies in the fact that a succession of flowers can be arranged in a border without overcrowding. Instead of cramming the Chrysanthemums into the border, there to half smother themselves while they are waiting to take the place of earlier flowers when the latter shall have faded, the Chrysanthemums can be planted in good soil in some spare plot, with plenty of room to grow into healthy and vigorous specimens. Earlier things can be cut down when they are over, and the Chrysanthemums planted near them. This greatly extends the beauty of a border. Similarly, beds may be planted with Chrysanthemums after summer flowers have faded.

Although the cottager generally allows his Chrysanthemums to look after themselves year after year, not troubling to take them up and divide them, or to raise fresh stock from cuttings, or to give fresh soil, outdoor plants benefit by attention. The clumps may be split up very much like a Michaelmas Daisy, and when they start growing in spring, planted in fresh, manured soil. But probably the best plants are got by raising a few fresh ones from cuttings every spring. This does not involve much trouble, and it insures young, vigorous plants which will produce abundance of large, brilliant flowers. Soakings of water in dry weather, and occasional doses of liquid manure, will of course benefit the plants.

The Pompon and Single varieties are the most generally useful for outdoor culture, owing to their branching yet neat habit and abundance of bright flowers. They can be cut from freely, and will prove quite capable of yielding a great deal of material for room decoration, as well as making a brilliant display in the garden.

A few words may be devoted to the enemies of Chrysanthemums before concluding with some remarks about varieties. Some of these enemies are insects, others fungi. The ubiquitous aphid is among the former, and the grower who finds it on his plants, in however limited numbers and under whatever colour, should never rest until he has exterminated it. He may succeed with almost any of the advertised insecticides, or with Quassia water, or with paraffin and soft soap, which have been described in previous chapters. As there advised, the appearance of the very first insect should be the signal for the commencement of hostilities.

There are several fungoid enemies. One of comparatively recent origin is rust, which forms large, brown, wart-like excrescences on the leaves; and if allowed to spread, speedily causes the death of the plant. When it first appeared very serious apprehensions were entertained respecting it. The early days of the Potato disease and the Hollyhock murrain were recalled, and pessimists were not slow to prophesy a fate for the Chrysanthemum analogous to that which had befallen the latter plant. However, things did not turn out so badly as had been feared. It was found that if affected plants were promptly removed and sprayed with liver of sulphur (sulphide of potassium), at the rate of half an ounce per gallon of water, at the first sign of an attack, the disease could be kept under. At the time of writing it has had several years in which to spread, but has not done so; and it may therefore be fairly assumed that the grower has found a means of keeping it under, and that only in case of neglect on his part is it likely to become a real menace to the plant.

Mildew is an old enemy, which coats the leaves with a whitish powder. It generally appears shortly after the plants have been put under glass in autumn, and is a result of sodden soil, or cold draughts, or a heavy, humid atmosphere. Free ventilation, with care in avoiding draughts; a lively, fresh atmosphere; and a soil which, while just moist, is never saturated, will keep mildew at



bay. Should it appear, however, the foliage must be dusted at once with flowers of sulphur.

The main difficulty of the authors of a gardening work which is to have permanent value is that of dealing with varieties. Species are fixed, varieties are ever changing. The novelty of one year is the veteran of the third or fourth year afterwards. In certain very popular flowers, notably Roses, Sweet Peas, Dahlias, and Chrysanthemums, whole strings of new varieties come out every year. For this reason we cannot give lists of varieties that we are sure will be as desirable in a few years' time as they are to-day. We can only name some of those which are the best at the time of writing. They may or may not be superseded a few years hence.

#### A SELECTION OF JAPANESE CHRYSANTHEMUMS

- |   |   |
|---|---|
| <i>Algernon Davis</i> , bronze, chestnut shading.         | * <i>Madame R. Oberthur</i> , white.                      |
| <i>Arthur Du Cros</i> , purplish rose.                    | * <i>Magnificent</i> , crimson, yellow reverse.           |
| <i>Bessie Godfrey</i> , canary.                           | <i>Marquis of Northampton</i> , buff, suffused with rose. |
| * <i>Brilliant</i> , amaranth.                            | * <i>Marquise V. Venosta</i> , white.                     |
| <i>Distinction</i> , salmon.                              | * <i>Master Davia</i> , crimson, gold reverse.            |
| <i>Edith Jameson</i> , pale pink.                         | * <i>Melchett Beauvy</i> , yellow, flaked rose.           |
| <i>Evelyn Archer</i> , pink.                              | * <i>Miss Elsie Fulton</i> , white.                       |
| * <i>Florence Penford</i> , lemon, chrome reverse.        | <i>Miss Gertie Court</i> , rosy red.                      |
| * <i>F. W. Lever</i> , cream.                             | * <i>Mr. F. S. Vallis</i> , yellow.                       |
| <i>General Hutton</i> , golden yellow.                    | * <i>Mrs. A. H. Lee</i> , crimson.                        |
| * <i>Henry Perkins</i> , yellow, flaked chestnut.         | * <i>Mrs. A. T. Miller</i> , white.                       |
| * <i>J. H. Silsbury</i> , crimson, yellow reverse.        | * <i>Mrs. Barkley</i> , rosy mauve.                       |
| * <i>John Peed</i> , white, rose edge.                    | <i>Mrs. F. Coster</i> , orange.                           |
| <i>Joseph Stoney</i> , crimson.                           | * <i>Mrs. F. W. Vallis</i> , crimson.                     |
| <i>Lady Conyers</i> , pink, silvery reverse.              | * <i>Mrs. G. Miisham</i> , rose, silvery reverse.         |
| * <i>Lady Hopetoun</i> , silvery blush.                   | * <i>Mrs. J. W. Cole</i> , white.                         |
| <i>Lady Lennard</i> , amber.                              | <i>Mrs. W. Jinks</i> , rose.                              |
| <i>Lady Talbot</i> , primrose.                            | <i>Mrs. W. Knox</i> , yellow.                             |
| * <i>Leigh Park Wonder</i> , dark crimson.                | * <i>Norman Davis</i> , brownish red, yellow veins.       |
| * <i>Madame G. Rivol</i> , yellow, shaded rose.           | <i>O. H. Broomnead</i> , deep rose.                       |
| * <i>Madame Paolo Radaelli</i> , very soft pink or ivory. | <i>Olive Miller</i> , blush.                              |
| * <i>Madame R. Cadbury</i> , ivory.                       | * <i>President Viger</i> , lilac.                         |

\**Rev. R. D. Eves*, white, pink tinting.  
*Reginald Vallis*, rose.  
*Splendour*, yellow, suffused rose.

*Valerie Greenham*, lilac.  
*W. A. Etherington*, salmon pink.  
*Wm. Beadle*, crimson.

The foregoing are all suitable for exhibition. Those marked \* may be chosen for a small collection.

## A SELECTION OF DECORATIVE AND CUT-FLOWER JAPANESE

*Crimson Source d'or*, crimson.  
*Ettie Mitchell*, bronzy yellow.  
*Framfield Yellow*, golden yellow.  
*Heston White*, pure white.  
*Lady Selborne*, white, early.  
*La Triomphante*, white.  
*Madame F. Perrin*, pink.  
*Madame G. Debrie*, soft pink.  
*Market Gold*, yellow, late.  
*Money Maker*, white.

*N. C. S. Jubilee*, lavender.  
*Nelly Blake*, crimson, early.  
*Niveus*, white, late.  
*October Crimson*, red.  
*Soleil d'Octobre*, yellow, early.  
*Source d'or*, orange.  
*Tuxedo*, bronze, late.  
*Viviand Morel*, pink.  
*Winter Cheer*, amaranth, late.  
*W. H. Lincoln*, yellow, late.

## A SELECTION OF INCURVED

*A. H. Hall*, purple.  
*Buttercup*, yellow.  
*Chas. H. Curtis*, yellow.  
*Duchess of Fife*, white, lilac streaks.  
*Emblème Poitevine*, yellow.  
*Godfrey's Reliance*, chestnut, gold reverse.

*Lady Isabel*, lavender.  
*Ladywell*, lilac.  
*Mrs. Barnard Hankey*, mahogany.  
*Mrs. F. Judson*, white.  
*Mrs. G. Denyers*, pale pink.  
*Triomphe de Montbrun*, crimson and buff.  
*W. Biddle*, lemon.

## A SELECTION OF DOUBLE GARDEN VARIETIES

*Carrie*, yellow.  
*Champ d'or*, yellow.  
*Claret*, dark red.  
*Fire-light*, red, yellow reverse.  
*Freedom*, rosy purple.  
*Goacher's Crimson*, red, yellow reverse.  
*Harvest Home*, red, yellow tips.  
*Horace Martin*, yellow.  
*Jimmie*, purplish crimson.  
*Le Cygne*, white, late.

*Le Pactole*, bronze.  
*Lillie*, pearly pink.  
*Market White*, cream.  
*Maxim*, chestnut, yellow shading.  
*Minnie Carpenter*, terra-cotta.  
*Mina Blick*, bronzy red.  
*Rabbie Burns*, salmon pink.  
*Rubis*, claret.  
*White Quintus*, white.



## A SELECTION OF EARLY GARDEN OR POT SINGLES

*Dolly Iniff*, crimson, shading off to orange.  
*Distinction*, rosy cerise.  
*Florence Gillham*, white.  
*Gem of Merstham*, crimson.

*Good Hope*, rose.  
*Kingcup*, yellow.  
*Mrs. C. Curtis*, crimson.  
*Pink Beauty*, pink.

## A SELECTION OF LATE-FLOWERING SINGLES FOR POTS

*Bronze Edith Pagram*, bronze, yellow  
 base.  
*Canary Bird*, yellow.  
*Crimson Queen*, red.  
*Dainty*, yellow.  
*Emile*, pink.  
*Felicity*, ivory.  
*Florrie King*, pink.  
*Gaiety*, salmon.

*Gladys Hemsley*, pink.  
*Mary Anderson*, blush.  
*Merstham White*, white.  
*Miss Craig*, white.  
*Mrs. Gwynn Powell*, blush.  
*Reine des Roses*, pink.  
*Reggie*, crimson, yellow ring.  
*Ronald Ferguson*, blush.  
*Sylvia Slade*, crimson, white ring.

## A SELECTION OF REFLEXED VARIETIES

*Chevalier Damage*, yellow.  
*Dr. Sharpe*, magenta.  
*Emperor of China*, blush.

*King of Crimson*s, crimson.  
*Pink Christine*, pink.  
*Progne*, amaranth, fragrant.

## A SELECTION OF LARGE-ANEMONE VARIETIES

*Delaware*, white, yellow centre.  
*Descartes*, crimson.  
*Gluck*, yellow.

*Lady Margaret*, white.  
*Prince of Anemones*, lilac.

## A SELECTION OF POMPON VARIETIES

*Bob*, brownish crimson. | *Mdlle. Marthe*, white. | *Wm. Westlake*, yellow.

## TENDER BEDDING PLANTS

THE Tulip mania is so far back as to be entirely a matter of history, but many people who are still living can remember when the bedding-plant craze was raging. Perhaps some of them may contend that the word "craze" is somewhat too strong, urging that the passion for special Zonal Pelargoniums ("Geraniums") never ran so high, or took such extravagant shapes, as the Tulip rage. Certainly we have not heard of people feverishly outbidding each other, or of houses being bartered, for single plants, of speculation as mad and excited as that which marked the South Sea Bubble; and we have no objection to the substitution of the milder word "obsession," if it is calculated to soothe the susceptibilities of sensitive readers.

### ZONAL PELARGONIUMS ("GERANIUMS")

Two-thirds of the way through the last century flower gardeners were undoubtedly obsessed by the Geranium as a flower-garden plant. It was the undisputed queen of the border. New varieties were sought after eagerly by amateurs, and as a consequence they became a valuable commercial commodity. Raisers gave as much attention to them as they give to Sweet Peas, Roses, and Dahlias at the present time. Prices ruled high, and the fortunate raiser of a distinct and (as judged by the standards which ruled gardening then) particularly valuable variety reaped a golden harvest.

We are old enough to remember when the leading trade and amateur florists clustered eagerly round a new variety of Geranium, when an earnest committee of experts sat in solemn conclave considering its merits, when the greenhouses of the leading nurserymen



were packed with novelties in Zonals, when gardeners led their visitors proudly from bed to bed and from ribbon border to ribbon border, and when as much as a guinea a plant was paid for a newcomer. The Geranium is largely grown still, but those proud days have passed, and it is very unlikely that they will ever return. The bright old plant has had its hour of glory, and must now be content with playing a minor part in the designs of flower-lovers.

It is to be noted that in the old days Geranium raisers worked for leaf quite as much as for flower beauty—indeed, it was the markings of the foliage, in the form of a zone, that first gave the class its distinctive name of Zonal. The popular name of Geranium should never have been applied to the plant, because there is a genus of hardy plants which has a proper botanical claim to the name Geranium. Nor are the true Geraniums obscure and commonplace plants. They are grown in thousands of gardens, and are very beautiful. They differ from the pseudo-Geranium (the Zonal) in being perfectly hardy. This case of popular nomenclature, with its attendant confusion, places a weapon in the hands of those who support a classical system of naming plants, and who drive home the point that an indiscriminate and unsystematic plan of naming must inevitably lead to confusion. It is to be feared that there is only too much truth in this. We say feared, because we are firmly convinced that the stiff Latin names of many beautiful plants are a real obstacle to their general cultivation, and we would gladly see names given to them which are easier of pronunciation by the multitude.

The popular Zonal Geraniums of former days, which were grown for the beauty of their leaves, were so numerous that they had to be divided into sub-sections, such as Golden Tricolor, Silver Tricolor, Golden Bronze, Black-leaved, Yellow-leaved, and White-edged. The famous Mrs. Pollock, the advent of which caused quite a furore, was a Golden Tricolor, and another renowned variety in this class was Peter Grieve. Golden Harry

Hieover was a well-known representative of the Bronze section, and Crystal Palace Gem of the Yellow-leaved, while Flower of Spring held an assured place among the White-edges.

In recalling the varieties which were most largely grown for the beauty of their flowers, the names of Vesuvius, Henry Jacoby, John Gibbons, and Master Christine come back to us. They were the popular varieties of our boyhood, and on them we practised the art of making cuttings for the first time. They were planted in beds, and they formed the most important constituent in ribbon borders. We may remind readers that a typical old-time "ribbon border" consisted of a row of scarlet Zonal Geraniums, a row of yellow Calceolarias, and a row of blue Lobelias. Do many readers, owners of beautiful herbaceous borders, smile at so crude a combination? If so, let the smile be one not wholly of contempt, but one containing a flavour of sympathy and indulgence. At the worst, our forefathers were making towards beauty. They were brightening their home surroundings with objects of cheerful innocence at a period when the bulk of the nation was enamoured of coarse and brutal sports. Their influence was assuredly not wholly pernicious. They won many converts to the pleasure and benefits of flower-growing who may have had no higher ideal previously than the prize-ring. They aroused a love of flowers in simple minds which could never have been influenced by the canons of high art. We may, indeed, say of the old-style flower gardening that it was well calculated, by its bright simplicity, to attract the elementary natures which invariably preponderate in a commercial nation, just as simple and obvious melodies win countless people to a love of music.

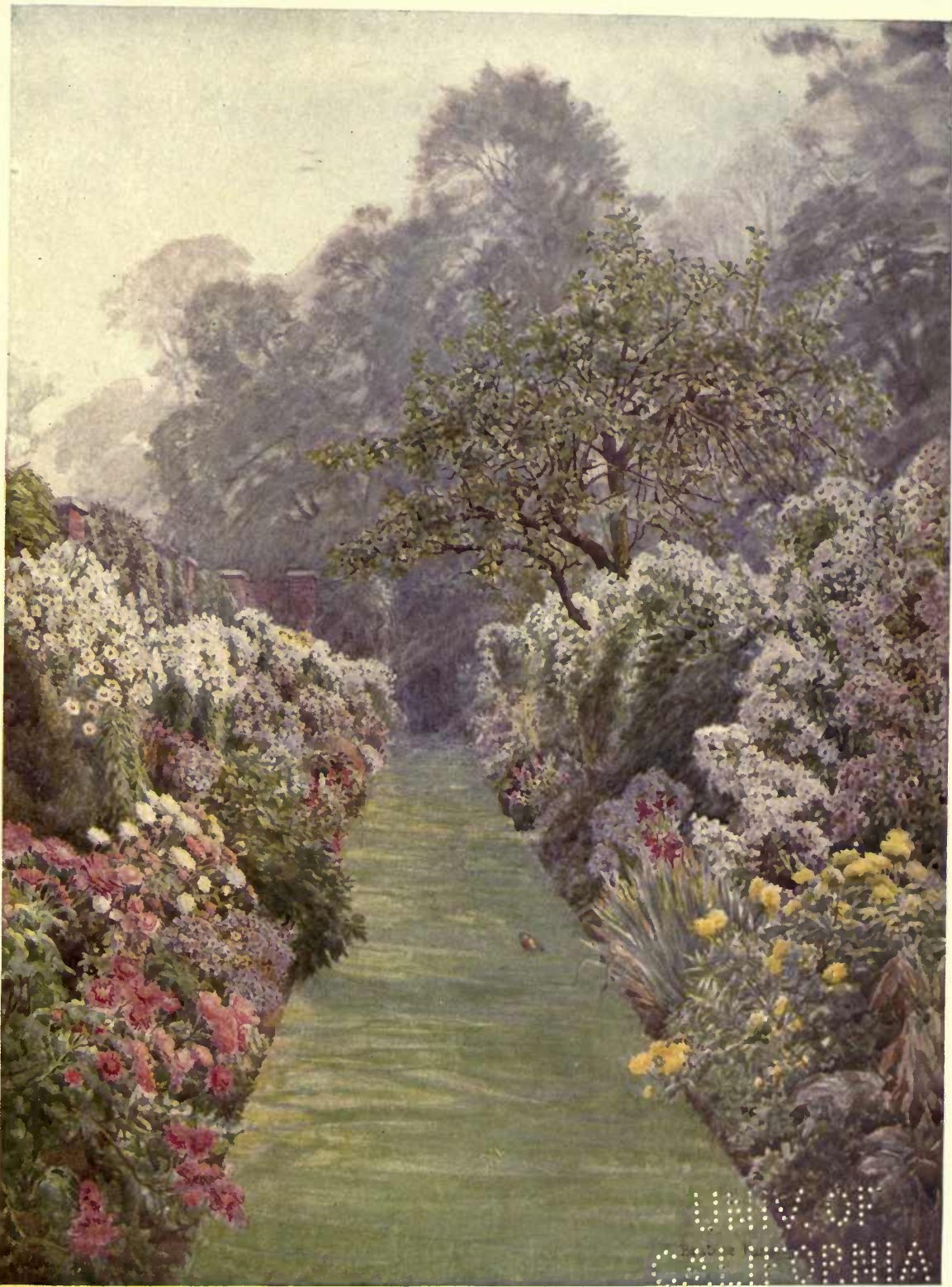
In due course cultured flower-lovers got tired of ribbon borders, but they did not give up gardening because they had grown weary of brilliant Geraniums. They asked for something more artistic. They took a step forward. They widened their borders, and filled them with beautiful flowering shrubs and herbaceous plants. The



change was admittedly one for the better, and while retaining an affection for the bright old favourites of the mid-Victorian era, we readily agree that modern flower gardening is of a higher artistic standard than the old. We think, however, that the Zonal Geranium has not yet done all the good work of which it is capable, any more than "Home, Sweet Home." There are still great possibilities left in it. The old varieties which we have named are still with us, and they are supported by many modern sorts. It has to be remembered that large numbers of people who gave up growing Zonals for summer flowering in the garden retained them for blooming under glass in winter; indeed, the plant progressed almost as rapidly in one direction as it receded in the other. Raisers of Zonals did not find their "occupation gone"; they only found that they must work in a different direction. Amateurs gave up asking for Zonals with handsome foliage, and for bedders, but they clamoured even more eagerly than before for Zonals with large, round flowers, bright colours, and good habit that would bloom throughout the winter.

The thing that might have been expected has happened. With the plants closer under their eyes in the greenhouse than they were in the garden, amateurs have come to pay more attention to form of flower than they used to do. The modern Zonal must have a perfectly circular bloom, with the florets overlapping evenly. A flower of uneven outline, and which shows gaps between the petals, is not cared for. If a variety has these imperfections, amateurs will not grow it, however dwarf and free flowering it may be.

Those readers who have come into flower gardening in recent years, and under the influence of the modern school, may read with some surprise remarks which tend to suggest that, in spite of the decline of the Zonal in large flower gardens, the number of varieties has increased. It most certainly has done so. There is a far larger selection of sorts than there was twenty years ago.



A SUBURBAN GARDEN, HAMPSTEAD  
By Beatrice Parsons



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And the fact that they have been developed with an eye rather to the winter conservatory than the summer garden must not lead to the assumption that they are useless out of doors. Many of them are quite suitable for the garden.

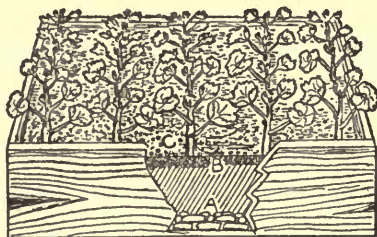
Town and suburban gardeners are still very partial to the Zonal. They grow it in their little plots and on their window ledges. What braver, brighter flower is there for a box in a hot place than the Zonal? What more useful plant for a sun-scorched border? The country cottager uses it too, and so does the farmer. The latter does not generally study flower gardening very closely. He has other fish to fry. As long as he is successful with his cattle, he does not mind being told that he is behind the times with his flowers. He will put in a ribbon border quite cheerfully to this very day.

Let us, hoping for still more good from the bright, cheerful, and enticing effect of the Zonal Geranium, take it quite seriously as a bedding plant even in these days of hardy flowers. Let us recognise that it is a force—still eminently worthy of attention. We will not suggest that beds should be filled with it, nor even that ribbon borders of the time-honoured red, yellow, and blue should be formed, but we will hint that a few colonies of good Zonals—say clumps of a dozen plants—might very well be arranged in mixed borders. Again, there are hot, dry borders under walls which often go bare because of the difficulty of finding plants that will endure the poverty and aridity. If strong, well-rooted Zonals are put out and given a few waterings, the chances are that they will thrive, and flower brilliantly for several months. Further, there may be tubs or vases to fill. This is not exactly bedding, but it comes near it.

Zonal Geraniums are generally planted in spring, and at that period they are undeniably tender, although it takes more than a slight frost to kill them in autumn, when the stems have grown thick and woody. The spring plants have been made tender by



being grown under glass, possibly in a crowded state. The provision of accommodation for the plants in spring presents one of the real drawbacks to the culture of Zonals for bedding. During



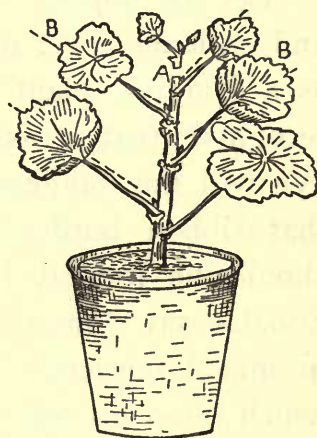
ZONAL GERANIUMS INSERTED IN A BOX FOR BEDDING PURPOSES

A, drainage; B, sand on the surface of the soil; C, cuttings inserted at 4 in. apart.

the winter there is very little trouble, because the plants are quite small (those, at all events, which were struck as cuttings the previous summer), and they will remain quiescent if the house is cool. But with the warmth of spring comes growth, and demands for more space, which is not always provided easily. Directly the weather permits, the

plants should be put into frames or pits, but thick mats must be kept handy for putting over the glass on cold nights. The cooler the atmosphere and the nearer the plants are to the glass, the sturdier they will be. They will grow, but not rapidly.

They should be kept in the boxes wherein they were placed in autumn as long as possible, but not so long that they get very crowded, as that weakens them. Rather than this they ought to be put singly in small pots—say 3-inch or 4-inch. Full exposure to the air should be given in fine weather. Plants that are treated in this way will be in excellent condition for planting in beds or boxes in May. In mild districts they may be put out at the middle of the month, but in cold localities the planting should be deferred until the end.



SHOWING HOW TO TREAT A PLANT FOR WINTER FLOWERING

A shows the top pinched off; B, B, side-shoots will grow afterwards as denoted by the dotted lines.

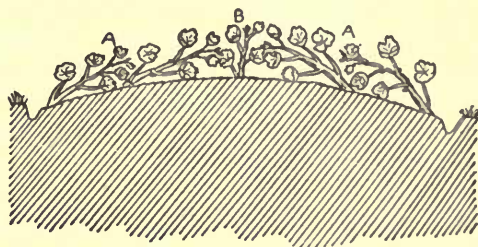
Some growers of Zonals like to keep the old plants through the winter, in order to save the housing of young stock. When they lift the plants from the beds in autumn they prune in both branches

and roots, leaving no more than short stumps in both cases. When the plants are thus deprived of foliage they need no longer be exposed to light, but may be hung up in a cellar or attic. It cannot be said that the plan is always successful. Failure sometimes ensues through the plants rotting off, and they are most likely to do this when the place in which they are stored is damp. Decay can be staved off sometimes by cutting out the parts affected and dusting lime on; indeed, the plants should be examined periodically in order to see if they require such attention. Success turns upon the promptitude with which incipient decay is dealt. Provided that the plants can be kept sound, the plan is excellent, as fresh growth starts in spring, and nice plants soon develop.

Zonals will thrive in almost any kind of soil. They grow the most rapidly in rich soil, naturally, but there is such a thing as over-luxuriance. Very free growth means large, succulent plants, which do not flower very well, especially

in a wet season. Shorter, harder plants are likely to bloom better, and they will certainly keep on longer in autumn, because the tough growth will resist the cold. The facts being thus, it is not wise to prepare the soil so liberally as would be the case if preparing for prize Sweet Peas. There is no occasion for trenching or manuring; the ground should be well dug—that is all. In poor soil the plants may be put in fifteen inches apart; in fertile ground, eighteen inches. Gardeners who have to deal with old, scraggy plants, which exhibit an inordinate amount of bare stem, adopt the plan of inserting them in a sloping position, so as to bring the tops nearer to the ground.

Zonals with beautiful foliage rarely have really fine blooms, but they can be associated with other plants which are attractive by



BEDDING-OUT ZONAL GERANIUMS

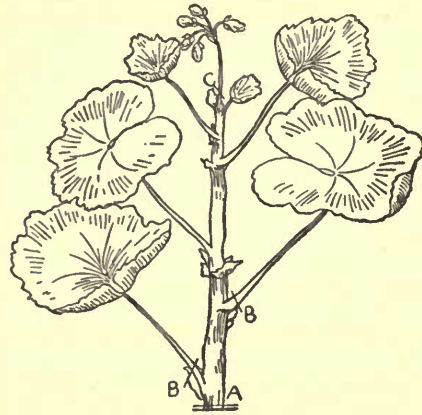
A, A, tall specimens planted in a slanting position;  
B, a dwarf specimen planted upright.



reason of their flowers. A Golden Tricolor can be put among plants of *Lobelia fulgens*, which has dark foliage and long spikes

of scarlet flowers. The leaf harmonies thus produced are very pleasing. Or they can be mixed with fibrous-rooted Begonias. Another plan is to use a mixture of silver-leaved Zonals and blue Violas. Pretty beds are thus formed, which retain their beauty for a great many weeks.

The cultural routine is very simple. It consists mainly in removing decaying bloom trusses promptly, and in keeping down weeds. The former can be done by pinching off the flower-stem low down with finger and thumb,



A CUTTING OF ZONAL GERANIUM

A shows the place where the stem must be cut off; B, B show the basal leaves that should also be cut off; and C shows the flower stem. This must be removed.

the latter by hoeing. It is desirable to give particular attention to the removal of decaying flowers in damp weather, as if the petals fall and cling to the moist leaves the foliage may become diseased.

Propagation is generally effected by taking cuttings in August. Short, non-flowering side-shoots are the most suitable material. If they can be taken off just under a joint, about four inches long, they will do admirably. The foliage should be removed from the lower part, leaving about two inches of clear stem. It is common to insert them in the open air, either in a bed or boxes. If the former, make the soil fine, level, and firm. If the latter, prepare a very sandy compost, and make it firm in the boxes. The cuttings should be inserted about four inches

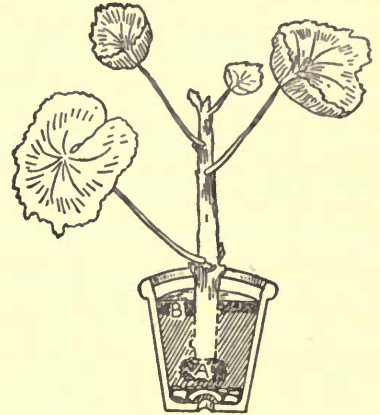


A ZONAL GERANIUM CUTTING MADE READY FOR INSERTION

apart, and it is important that the base should be quite firm. Full exposure to the sun may be given, as the succulent shoots contain abundant stores of moisture, and will not flag and shrivel under exposure, the same as thin cuttings would do. The cuttings will steadily push roots, but they are not likely to be sufficiently rooted to make much top growth before winter, and this is all the better, so long as they are alive and healthy. The smaller they are the less room they will take up.

The cooler the surroundings are throughout the winter the better, provided neither frost nor damp is present. The air should be kept as dry as possible. Very little water will be required, and a supply should only be given when the soil becomes quite dry.

We will conclude our remarks on the Zonal Pelargonium as a flower-garden plant with a selection of varieties, which shall include varieties that are attractive by reason of their foliage, and others that are admired for their flowers.



ZONAL GERANIUM CUTTING INSERTED  
IN FLOWER-POT

A shows sand at the base of the cutting;  
B shows sand on the surface of the  
soil in the pot.

### FLOWERING ZONALS

*Beckwith's Pink* (*Mrs. Robert Hayes*).—A well-known single variety, very free blooming and bright in colour.

*Henry Jacoby*.—A very old favourite, crimson, single, a profuse bloomer and of very rich colour. A variety of somewhat more erect habit can be got under the name of *Henry Jacoby Improved*.

*John Gibbons*.—Orange, very brilliant, single flowers.

*Paul Crampel*.—A magnificent single scarlet, of good habit and with immense flower trusses, which are borne profusely throughout



the season. This is certainly one of the finest of all the bedding Zonals.

*Phyllis*.—Rosy salmon, single flowers.

*Swanley Single White*.—The name describes this excellent variety.

In addition to the above singles we feel constrained to mention those favourites of former days, Vesuvius and West Brighton Gem, if only as a matter of sentiment, although we think that both are inferior to the modern Paul Crampel. Vesuvius was the great bedding scarlet of the old-time bedders, and West Brighton Gem was a sport from it with pale flower stalks and stems. They are still as bright as any, but are surpassed in size of truss by newer varieties. Surprise may also be mentioned; it is a salmon-coloured form of Vesuvius. Other good salmons are Mrs. Robert Cannell and Omphale, other pinks Cannell's Pink and Olive Carr.

*Double Henry Jacoby*.—This is a double variety of the old favourite crimson.

*F. V. Raspail*.—A popular scarlet double, free blooming.

*Hermione*.—One of the best of the double whites.

*King of Denmark*.—A good double salmon.

*Ville de Poitiers*.—Double scarlet.

We have selected the above varieties, both in the case of singles and doubles, because they are all of suitable habit for bedding; but any reader who has a favourite round-flowered single which he has been growing under glass may try it out of doors if he likes. Plants that have bloomed under glass in winter or spring may be planted out of doors in May if desired.

#### FOLIAGE ZONALS

*Mr. Henry Cox*.—A Golden Tricolor, with crimson zone; one of the best.

*Masterpiece*.—Golden Tricolor, very large, dark zone.

*Mrs. Pollock.*—Golden Tricolor, the old favourite.

*Mrs. Miller.*—Silver Tricolor, rich dark zone.

*Dolly Varden.*—Silver Tricolor, bright red zone.

*Jubilee.*—Golden Bronze, chestnut zone, salmon flowers.

*Golden Harry Hieover.*—Golden Bronze, a dwarf grower.

*L'Enfer.*—Very dark foliage and bright scarlet flowers, an effective variety.

*Crystal Palace Gem.*—Yellow leaves, bright flowers.

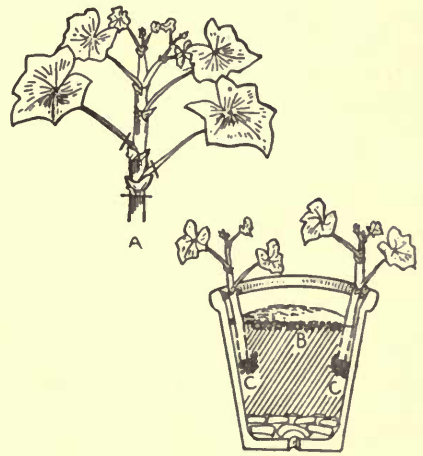
*Flower of Spring.*—Creamy foliage, dwarf, neat habit.

Other popular foliage Zonals are Peter Grieve, Distinction, White Distinction, Robert Fish, Boule de Neige, and Brilliantissimum.

#### IVY-LEAVED PELARGONIUMS

The Ivy-leaved "Geranium" has grown steadily in favour, both as a flower-garden and indoor plant, during recent years. It is somewhat singular to reflect that it has never come under the ban of hardy flower lovers in the same way that the Zonal has—singular, inasmuch as it possesses practically similar defects as well as similar good qualities. It is tender, it is just a little garish. Why should it not be *tabu*, equally with the Zonal? Perhaps there is no better explanation than that it never formed a part of the old ribbon border system, which aroused so much abhorrence.

In their hearts all hardy plantsmen realise fully that the "Geranium" is a plant which can never drop out of our gardens. It is too persistent in blooming, too accommodating, too bright and varied



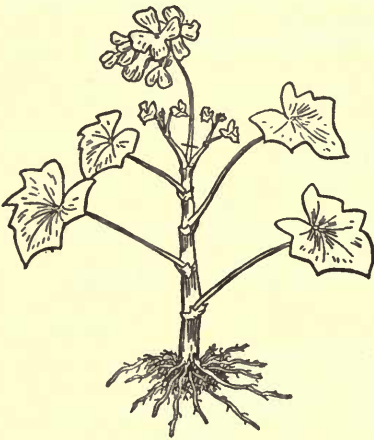
PROPAGATING IVY-LEAVED GERANIUMS

A shows how to prepare the cutting. The stem is severed below a joint, and the two lowest leaves are removed. B, sand on the surface of the soil. C, C, sand at the base of the cuttings.



in colour, ever to "go under" entirely. Many of them hanker after it themselves, and perhaps one reason for the rise in favour of the Ivy-leaved class is that it is accepted in the nature of a compromise. One can imagine a hardy plant lover responding to the raised eyebrows of a visitor of congenial tastes by hastily saying: "Ah! but these are the Ivy-leaved Geraniums, you know—quite different from the old Zonals."

Whatever the reason may be—whether as a substitute for Zonals or because of their own intrinsic merit—it is quite certain that the Ivy-leaved section enjoys great favour. It is grown in the garden, in the conservatory, in vases, and in window-boxes. Its habit is loose and flowing. It droops flower-laden streamers from the summit of pillars, and from window ledges. Its flowers are large and abundant, and they come in a long succession throughout the summer. The leaves have not the brilliant markings of the handsome Zonals, but the Ivy shape is attractive. The plants look charming on banks, and as they possess much



IVY-LEAVED GERANIUM

Cutting well rooted and ready for potting singly in small pots.

of the drought-resisting power of the Zonals, owing to their succulence, they will thrive in hot places. We think, however, that they may be given a somewhat better soil than the Zonals without fear of their making such exuberance of growth as to flower badly.

The Ivy-leaved Geraniums can be bought with single or double flowers, but the latter are much the more largely used. They are often planted in raised beds, or trained to stumps in flat beds, with dwarfer plants among them. In both cases their drooping, flower-laden stems show to advantage.

As the Ivy-leaved Geraniums are tender, like the Zonals, they



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CALIFORNIA

SINGLE CHRYSANTHEMUM  
By Beatrice Parsons







ought not to be planted before mid-May. If planted on the level, and in fertile soil, they may be put two feet apart. If trained on logs or stumps, another foot should be allowed. Beyond a little training of the shoots, hoeing to keep weeds under, and the removal of decaying flower trusses, the plants will need no attention. It is only in quite exceptional weather that they will require watering, when once fairly established.

The best method of propagation is to strike cuttings a few inches apart in boxes in August, the same as Zonals.

The following are beautiful varieties of Ivy-leaved Geraniums for bedding. Only doubles are named, as they are much better than the singles.

*Achievement*.—Salmon and pink.

*Flambeau*.—Scarlet.

*Galilee*.—Rosy pink.

*Madame Crousse*.—Silvery pink.

*Robert Owen*.—Deep rose.

*Ryecroft Surprise*.—Salmon pink.

*Souvenir de Charles Turner*.—Maroon and pink.

Madame Crousse and Souvenir de Charles Turner may be chosen if two only are required. They are free bloomers, have large, double flowers, and the colours are distinct and pleasing.

### CALCEOLARIAS

We have said that one of the components of an old-time ribbon border was the yellow Calceolaria. Lovers of herbaceous Calceolarias, which they grow for decorating greenhouses and conservatories in early summer, will know that the bedding type belongs to a different class. It retains its stems after flowering, instead of dying down, and is therefore termed shrubby. It is, indeed, an evergreen, and although not quite hardy, is by no means a tender plant. The flowers are of similar form to the herbaceous, but



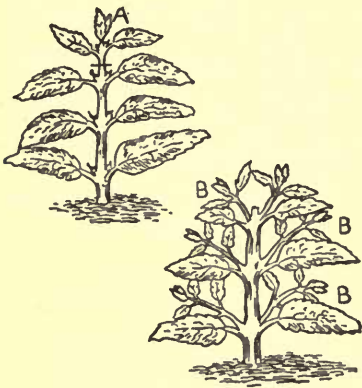
much smaller. There is no great range of colours among the shrubby garden Calceolarias, although they are not all yellow. There are white, orange, red, and violet species in addition to the yellow. Some of those grown for bedding are garden hybrids, varieties, or selections. Such are Bijou, Gaines's Yellow, Golden Gem, Sultan, and Golden Glory. Of these the last is by far the finest. It is a splendid plant with large trusses, and the colour is bright yellow. Most of these Calceolarias have come from the species *integrifolia* (*rugosa*).

We will not recommend the resurrection of ribbon borders in order to justify the inclusion of bedding Calceolarias in modern flower gardens. Clumps of them may be placed in selected positions in beds and borders, and they may be used in window-boxes also. They are so bright and cheerful that they merit attention for these purposes, and if used with discretion they do not overweight the garden.

The shrubby Calceolaria would be even more popular than it is but for the fact that it often succumbs to a disease which causes root decay, followed by general collapse. The trouble is worst in poor, dry soils, and when the plants have to struggle against hot, dry weather from the moment that they are planted out. On this account growers are learning to dissociate them from Zonals, as regards time of planting. There never was any real reason, of course, why the two plants should be linked together, because they are totally dissimilar in every way. It was the unfortunate ribbon border that brought them together, and got them associated in people's mind as inseparable companions, that must be treated exactly alike in every respect. Young Calceolarias are much more hardy than young Zonals, and consequently they may be planted out a month earlier, without much risk of injury from frost. They are certainly better out of doors than under glass after the end of April, because they keep hardier and sturdier. Moreover, when planted early they have a chance of getting well rooted before the hot weather comes on.

Calceolarias should have a better and moister soil than Zonals. The ground ought to be dug deeply, and thoroughly broken up, to assist it in holding moisture in dry weather. Regular hoeing should be practised, in order to keep the surface loose and crumbly, for this conserves moisture. The plants may be set a foot apart. They will soon begin to flower, and will retain their beauty all the summer. An occasional soaking with water or liquid manure will do good.

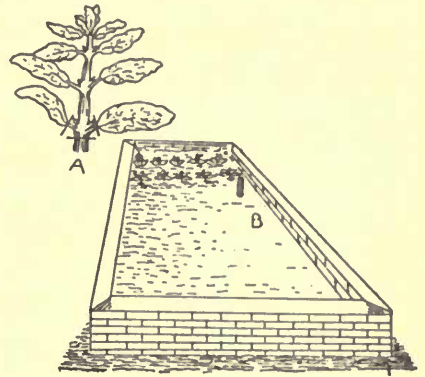
Although we recommend earlier planting than in the case of Zonals, we recommend later propagation. If the cuttings are struck in August, the plants are liable to make growth the same season, and that is not desirable. When the cuttings are inserted in October and kept cool throughout the winter, they will remain alive, but will not start growing until spring. The best wood for cuttings is short, sturdy, flowerless side-shoots, which may be taken off beneath a joint, deprived of the lower leaves, and inserted firmly in a frame. The soil ought to be of a very sandy nature, and should be moist. The cuttings must be inserted firmly just clear of each other, and given a light watering overhead. The frame



PINCHING BEDDING CALCEOLARIAS

A shows point of plant to be pinched off; B, B, B show side-shoots growing as a result.

should be kept quite close and shaded for the first week, but afterwards air may be given in fine weather. A thick mat or some other warm covering should be placed over the glass in very cold weather, but a slight frost will not hurt the cuttings.



PROPAGATING BEDDING CALCEOLARIAS

A shows how to prepare the cutting. The stem and two basal leaves must be cut off as shown by the dark lines. B shows how to insert the cuttings in sandy soil in a low frame.



They will commence to grow in spring, and the first young shoots may be stopped with finger and thumb in order to make the plants bushy. Thus treated they will be nice stuff for planting towards the end of April, and will bloom freely, while continued flowering may be maintained by removing the old trusses as they decay.

The following are good varieties of bedding Calceolarias :—

*Bijou*.—Dark red.

*Gaines's Yellow*.—One of the most popular for bedding.

*Golden Gem*.—Bright yellow, excellent in every way.

*Golden Glory*.—Yellow, large, and very free, a splendid sort, which will be largely grown when it is abundant enough to be cheap.

*Prince of Orange*.—Brownish orange.

*Sultan*.—Purple.

In addition to the above a species named *amplexicaulis* is sometimes offered in the florists' catalogues. It is larger than the majority of the bedding Calceolarias, growing eighteen inches high. The colour is lemon yellow. *Burbidgei*, which is sometimes included in offers of summer bedding plants, is a large, loose-growing hybrid with yellow flowers of great size. It is a splendid Calceolaria, but is more suitable for winter flowering in a warm greenhouse than for summer bedding.

## LOBELIAS

The blue Lobelia completes the "ribbon border" triumvirate. It is a lowly plant, and as a consequence it was used at the front of the border. Growing only a few inches high, of dense habit, and blooming so profusely as to cover itself with flowers, it fulfilled its allotted part admirably.

The ribbon border is no longer a feature of good flower gardens, but the Lobelia, like the "Geranium" and Calceolaria, is

still used. Gardeners find it useful for putting round the edges of beds, and they employ it for window-boxes also.

Seedsmen sold, and still sell, seed of bedding Lobelias, but flower gardeners who find a variety which they like generally propagate it by means of cuttings, as they can thus keep it quite true, both in habit and colour.

Mid-May is a good time for planting. The Lobelia will be in bloom then, probably, but that is no bar to planting. The plants form a mass of fibrous roots, and if the soil is moistened and pressed firmly round them they can be shifted at any time. They are best planted in tufts about two inches thick, the clumps about three inches apart; they will then fill out and make a continuous



A STOCK PLANT OF LOBELIA



CUTTINGS OF LOBELIA

A shows a bad cutting. It is weakly and shows flower-buds. B shows a strong cutting. It should be cut off at the dark line, and the leaves marked C, C, C also removed.

line of colour. They will not spread, however, in a poor, dry soil. The ground should be moist and fertile. Given good land, the plants will remain in bloom until autumn. At that season they may be cropped in, lifted, and potted, or packed closely together in boxes, with the object of wintering them on a greenhouse shelf.

They will not make much progress in early winter, but if the house is heated they will begin to grow before the close of winter, and the young shoots can be taken off as cuttings when a couple of inches long, and struck in sandy soil. As soon as they are fairly rooted their tops can be removed and struck in turn. Thus from a few old "stock" plants a nice lot of young ones is quickly provided.

The following are good varieties of dwarf Lobelia:—

*Swanley Blue*.—One of the best blues.



*Newport's Model*.—Blue with white eye.

*Miss Hope*.—White.

*Kathleen Mallard*.—Double blue.

In these days of herbaceous plants the tall perennial *Lobelias* are largely used for beds and borders, but we can hardly include them in a chapter on tender bedders, as they are hardy. The species *cardinalis* and *fulgens* (scarlet flowers), and *syphilitica* (blue), and the numerous varieties of them, are very popular.

### AGERATUMS

These pretty, dwarf plants are old favourites for bedding, and are still used a good deal. They are generally classed as half-hardy annuals, and as such are raised from seed every year; but varieties of special merit may be perpetuated by means of cuttings, so long as they are not allowed to ripen seeds.



CUTTINGS OF AGERATUM

A shows a good cutting prepared for insertion; B, coarse soil and drainage in the pot; C, fine soil and sand.

If the plants have to be raised from seed in the first place, owing to the absence of plants from which to take cuttings, the seed may be sown in shallow boxes of light soil in spring, and the seedlings pricked off a few inches apart in other boxes when they

begin to get crowded. This will result in dwarf, sturdy plants, which will soon show bloom, and which will be quite ready for planting out by mid-May. They enjoy a well-dug, moist, fertile soil, and in such a medium will remain in bloom during the whole of the summer.

To perpetuate a variety by means of cuttings, pinch off the flower heads as they fade, and insert growing shoots in sandy soil, preferably over bottom heat, but certainly in a heated house.

They may have cool treatment as soon as they are rooted, as nothing is gained by pushing them on through the winter. If preferred, old stock plants may be kept in a cool house during the winter, and cuttings from them struck on a hotbed or in a propagator in spring.

The following are good varieties:—

*Blue Perfection.*

*Compactum nanum album.*—White.

*Imperial Dwarf*—Blue.

### ALTERNANTHERAS

When carpet bedding was in vogue the Alternantheras were very popular—indeed, they were practically indispensable to those who indulged in garden mosaics, owing to their neat, dwarf growth and to the beautiful colouring of their leaves. And carpet bedding was very much in vogue in the latter half of the nineteenth century. One read of carpet beds in many important gardens, and saw them in the public parks. They have died out of the former entirely, but one still comes upon isolated examples in the smaller provincial parks.

In the heyday of its popularity carpet bedding was never practised by the majority of amateur gardeners, and there were good practical reasons for this. In the first place, there was the preparation of the designs—a tedious and laborious business, of very little value as mental training. One could imagine a student of geometrical drawing finding interest in such a task, but no one else. Then there was the preparation of the requisite plants, and that was no light task, since in an elaborate design several kinds of a particular character had to be chosen, mostly such as required glass accommodation. Then there was the slow process of planting, which had to be done with as much accuracy as the laying down of a tiled floor. Finally, there was the periodical cropping



and trimming, without which the design would have speedily been lost through the intermingling of the various plants. It will be clear that, in proportion to its area, a carpet bed was one of the most expensive forms of gardening.

With respect to its effect, one cannot deny that a well-designed, well-kept bed possessed a certain interest, and that it was at least calculated to stimulate curiosity; but it was entirely unnatural, and on that account alone it is satisfactory to know that it is moribund.

With the decline of carpet bedding there was a decline in the cultivation of such plants as the *Alternantheras*, which are of little use in mixed borders, or for ordinary bedding. The method of culture was to pot stock plants in autumn the same as *Lobelias*, and keep them in a warm house throughout the winter, then to take cuttings and insert them in sandy soil over bottom heat, potting singly in due course, and planting out in early summer. The two species which, with their varieties, were most used were *amabilis* and *paronychioides*. A popular variety of the former was *amoena*, and two varieties of the other that were largely employed were *major* and *aurea*.

### IREINES

These plants share with *Alternantheras* a decline due to the fall of carpet bedding. Larger in growth (although dwarf) and less tender than the latter, they are still worthy of attention where coloured foliage is required. They are not very particular as to soil, or susceptible to variable weather conditions. They may be raised from cuttings inserted in sandy soil, preferably over bottom heat, in autumn or spring, and planted towards the end of May. *Herbstii* (maroon) and *Lindeni* (blood-red) are the two species grown, and there are several varieties of them, differing somewhat in the colour of the leaves.

## GAZANIAS

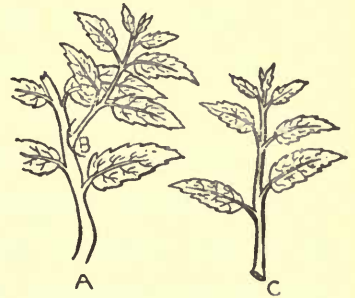
*Gazania splendens* is a brilliant orange-coloured flower, growing from a foot to eighteen inches high, and is sometimes used for bedding. There is a yellow variety of it, and one with variegated leaves. The plants love sunshine, and do best in loamy soil. They can be propagated by taking the side-shoots as cuttings and inserting them in sandy soil in a frame, which should be kept close.

## LANTANAS

These charming plants are very useful to bedders, and any amateur can grow them with ease. In foliage they resemble *Heliotrope*, and the flowers are borne in close heads. The colours are brilliant and varied. Inasmuch as the plants bloom freely and continuously, and will do in ordinary soil, they are undeniably useful. They have the defect of a straggly habit of growth, but this can be corrected by pinching in the early stages.

The *Lantanas* are useful for window-boxes, tubs, and large vases, as well as for beds.

They are propagated by taking cuttings of flowerless side growths late in summer, and inserting them in sandy soil in a warm frame kept close, or under a handlight. The resulting plants can be potted separately in March, and stopped when the shoots are about four inches long. Some prefer to preserve the old plants, shorten them and pot them in autumn, then prune them hard in spring like *Fuchsias*, and give them heat to start the back buds.



CUTTINGS OF LANTANA

A shows stem of old plant ; B, a side-shoot suitable for a cutting ; C shows the latter severed with a heel attached.



The following are good varieties :—

*Chelsea Gem.*—Crimson and pale yellow.

*Delicata.*—Pink with white eye.

*Drap d'or.*—Orange.

*La Neige.*—White.

*Magenta King.*—Purplish scarlet.

*Ne Plus Ultra.*—Rose.

Any of the above may be chosen of which the colour is liked.

### VERBENAS

We have already referred to the Verbena as a plant which may be raised from seed early in the year and treated as an Annual. Probably most growers deal with it in this way at the present time. The day of the Verbena as a florist's flower, to be grown through the winter and propagated by cuttings from year to year, is past. The florists of the mid-Victorian epoch esteemed it highly, but it gradually declined in favour with amateurs.

It must be acknowledged, however, that Verbenas make charming beds. When they are once established they grow rapidly, and flower profusely over a long period. The colours are bright, and the flowers are scented. Having these merits, Verbenas are certain of a considerable measure of popularity, especially when it is realised how easily they are grown from seed, and that one or two of the best of the modern varieties come quite true from seed.

The seed may be sown in boxes of light, sandy soil, kept moist, in January, the seedlings pricked off three inches apart when they begin to get crowded, and planted out from the boxes about mid-May. If the soil is rich they should be placed eighteen inches apart, and the growths pegged down as they extend. By adopting this plan the soil is quickly covered. Mixed seed of a good strain will give a nice selection of colours, but there are a few particularly

desirable sorts which ought to be procured and grown separately. Among them are:—

*Ellen Willmott*.—Pink with white eye, a lovely Verbena, suitable either for pot or garden culture.

*Venosa*.—Mauve, an old species of very distinct colour, much in demand for borders.

*Warley*.—Brilliant red, of upright habit, better suited for pot than for garden culture.

*Lustrous*.—Scarlet with white eye, a vigorous grower and excellent for beds.

*Lovely Blue*.—Pale blue, very sweet, a free grower.

*Boule de Neige*.—White, very sweet, a good bedder.

In the case of any variety of which seed is not procurable, cuttings may be taken, and struck in sandy soil in a close case or frame. Or old plants may be wintered and cuttings struck in spring.

### TROPAEOLUMS

The annual Tropaeolums of the half-hardy class, mostly varieties of Lobbianum, are not very largely planted in beds, owing to the fact that there is such a magnificent series of hardy varieties available. These are generally offered by seedsmen under the popular name of Nasturtiums, and we have referred to them under Hardy Annuals. The half-hardy trailers are sometimes trained over stumps in beds or borders, but more often on porches and arches, or planted to droop from window-boxes.

### TUBEROUS BEGONIAS

These splendid flowers have been dealt with in a previous section. In addition to their value for beds, they are in great demand for the decoration of greenhouses and conservatories. As bedders they have had a long drawn battle for supremacy with



Zonal "Geraniums," and have emerged victorious. We cannot but think that they are really superior to the old favourite, except in poor, dry soil, or in a very dry season. There can be no doubt of their superiority in rich, moist soils. The flowers are larger and the colours softer. They have the pull, too, in a wet season. The flowers of Zonals are not constructed to stand wet, and in a damp, cold season they have a very bedraggled appearance, while the plants run to leaf.

We warmly urge the claims of Tuberous Begonias as bedding plants. We have used them extensively, and with conspicuous success. Nothing in the way of dwarf plants can well be more beautiful than well-grown Begonias. The foliage is handsome, although it does not possess the rich and varied markings of the finest Zonals. The flowers are glorious. In a good strain one gets single blooms as large as saucers, and double ones that rival Hollyhocks and Camellias. The form is very beautiful, while the colours are as lovely as they are varied. Pure, snow-white, lemon and deep yellow, blush, soft pink and dainty rose, salmon, orange and brilliant scarlet—all these are present.

Begonias do not come into bloom quite so quickly as Zonals, because they take longer to get established; but there is no reason why they should be half the summer struggling along towards flowering, as they often are. More care in developing the plants, and more thoroughness in preparing the soil, remedy this common trouble. Early flowering is desirable, because it need not militate in any way against late blooming. If the plants are healthy and growing they will keep on flowering throughout the summer, and as long in autumn as the frost will keep away.

Amateurs who want to have a thoroughly successful bed of Tuberous Begonias ought to procure tubers in early March, bury them in a box of moist cocoa-nut fibre refuse or leaf-mould, and put them in a warm frame or house. The heat and moisture will start them into growth quickly. They may be allowed to remain

in the boxes as the growth extends, because potting them entails time, soil, and pots, without any very striking superiority in vigour. If the material is kept moist, roots will push into it freely. Plants in frames are pretty certain to keep dwarf and sturdy, but they might get drawn in a house unless care was taken to keep them near the glass. This point is of importance, as long, scraggy plants are very poor material for beds—or anything else either, for the matter of that. Air should be given in fine weather.

Between, say, mid-March and the end of May the plants will have plenty of time to get strong. Meantime, as soon as the spring plants are cleared away the soil ought to be prepared. It should be dug deeply—in fact, the subsoil ought to be broken up, so that a depth of a foot and a half is secured. Well decayed yard manure, leaf-mould, and wood ashes are all suitable material to add. If the soil is naturally retentive and moist—clay, for instance—it will be all the better for the plants; but light soil can be made to give good results with liberal treatment.

If the plants are six to eight inches high at the end of May, with a good mat of fibres, they will be in perfect condition for planting. The roots should not be shaken clear of the fibre when they are removed from the box; on the contrary, as much as clings to them must be allowed to remain. We say this, not because we believe that the fibre will be particularly nourishing to the plants when they are put in the beds, but because we regard it as important to avoid any risk of the roots getting dry. The plants may be put eighteen inches apart in heavy, rich, moist soil, but somewhat closer in lighter, drier ground. They may be settled in with a good watering, and if the weather should keep dry after planting it will be well to give further waterings until they have got nicely into growth. The grower must pay particular attention to the plants for the first two or three weeks, as it is very desirable to start them off quickly and keep them moving. Regular hoeing will suffice to maintain steady progress in retentive



soil, but in light ground it may be advisable to give a thick mulch of cocoa-nut fibre refuse after thoroughly soaking the soil. If the plants can be kept steadily at work until the foliage meets on the bed, all fear of failure may be considered at an end. Flowers will come, and will keep on coming—in fact, there will be a steady stream of lovely blossoms. But the culminating display will be in the cool days of September, and (if frost permits) early October. The plants will be laden with brilliant blossoms, and the bed will be one of the sights of the garden. Fading flowers should be picked off regularly throughout the season.

The problem of wintering the plants is a much simpler one than in the case of Geraniums, as they will lose their leaves and stems by a process of natural decay. The tubers can be lifted, dried, and stored in any dry, frost-proof place until spring.

We do not think that it is necessary to go to the expense of buying named varieties of Begonias for beds; mixed tubers will do; but, if desired, tubers can be bought in separate, distinct colours, such as white, cream, blush, pink, rose, yellow, salmon, buff, scarlet, crimson, and Picotee edged.

### CANNAS

The Canna is a valuable bedding plant, and thrives under practically the same treatment as Dahlias. The old-time Cannas were tall, vigorous plants, and were grown at least as much for their leaves as their flowers, being used in what was called sub-tropical gardening. The modern varieties are in the main much dwarfer, and with a reduction of leaf and stem growth there have come larger heads of bloom, together with increased diversity of colour.

The newer dwarf Cannas, with their large spikes of brilliant flowers, unquestionably make very fine beds. The foliage is broad and handsome. In some varieties it is plain green, in others brown,

crimson, or chocolate. The colours include yellow, orange, rose, crimson, and scarlet, while many varieties have spotted flowers.

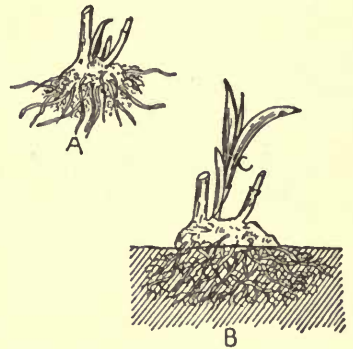
There are two great divisions of modern Cannas, namely, the Gladiolus-flowered and the Orchid-flowered. The former is the more important, as it embraces a larger number of beautiful varieties, with long spikes of large flowers; but there are some very fine sorts in the other class.

Both sections need the same cultural treatment, and the main item is the provision of deep, rich soil. Like the Dahlia and the tuberous Begonia, the Canna loves moisture and abundance of good fare. The soil should be prepared as thoroughly as for Begonias.

The amateur may begin by buying dormant roots or young growing plants in spring. The root-stocks start into growth readily in a warm house or frame. They may be potted, or plunged in moist cocoa-nut fibre refuse or leaf-mould similarly to Begonias; potting is practised as a rule. Any piece of root-stock with some root fibres and a growing crown will make a plant if potted. Growth will start from latent buds on the crown. With water as required, and moderate warmth, the plants will progress rapidly, and they may be planted two feet apart in the beds in May. They should be watered until they are growing freely; afterwards they will look after themselves in heavy soil, but in light soil occasional soakings of water, or liquid manure, may be required throughout the summer.

The growth will die away in autumn, when the roots may be lifted and stored for the winter. They should be kept in a frost-proof place, and free from drip.

Cannas may be raised from seed if required. The common name of "Indian Shot," which is applied to the Canna, is derived



CANNA—ROOT-STOCK AND GROWING CROWN

A, root-stock; B, root-stock in soil; C, growing crown.



from the hardness of the seed, which ought to be soaked in very hot water for half-an-hour before sowing, or germination may be very slow. The pots should be stood on a hot-bed or in a propagator. If the seeds are sown at midwinter, and the plants are potted and repotted as required, they will make good stuff by autumn, but they may not be ready for bedding the first year. They may be kept in pots for conservatory or greenhouse decoration—a purpose which they will serve admirably.

It is hardly necessary to go to the expense of named varieties for beds, but here are the names of half-a-dozen good *Gladiolus*-flowered varieties:—



ECHEVERIAS

A, old plant; B, offset which must be removed for propagating purposes at the dark curved line.

*Ami J. Chrétien*.—Chestnut.

*Aurore*.—Red.

*Comte de Bouchaud*.—Yellow, red spots.

*Königin Charlotte*.—Crimson, yellow edge.

*Kaiser Wilhelm II*.—Scarlet.

*Ménélik*.—Crimson.

### ECHEVERIAS (COTYLEDONS)

In the old carpet bedding days *Echeverias* (now called *Cotyledons* by botanists) were more important plants than they are now. They are very succulent, growing in the form of rosettes of thick, fleshy leaves, from which spring the long, slender flower-stems. The carpet bedders did not grow *Echeverias* for the flowers, but for the foliage. They used the plants in cones, shields, circles, and diamonds. A small mound would be raised, studded all over with *Echeverias* planted closely together, and surmounted by a graceful foliage plant, such as a *Dracaena*. The varieties *metallica* and *secunda glauca* were the most popular. The former is perhaps the best of all. It is a variety of *Gibbiflora*—itself well worthy of





YUCCAS  
By Beatrice Parsons



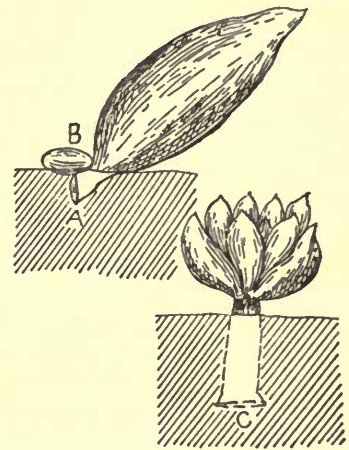


cultivation as a pot plant for the greenhouse, as it produces brilliant red and yellow flowers in July.

The *Echeverias* thrive in ordinary garden soil, but they do not care for heavy, moist ground. They are readily increased by offsets or by leaves, put in pots in a warm house in autumn.

### FUCHSIAS

The hardier of the *Fuchsias*, such as *Corallina* and *Riccartoni*, are sometimes introduced into beds and flower borders, but one can hardly speak of them as bedding plants in the ordinary sense. When they are used in the garden they are generally planted permanently, and cut to the ground every autumn. In cold districts it is well to cover the root-stocks with litter in November. The garden *Fuchsias* are particularly graceful plants.



ECHEVERIAS—PROPAGATION

A, leaf inserted in sandy soil; B, a stone placed on the heel of the leaf to keep it firm; C, offset inserted in sandy soil.

### HELIOTROPE

There is no reason why lovers of the fragrant "Cherry Pie" should not introduce it into their flower-beds, as well as grow it for adorning and perfuming the conservatory. The colours are not varied, it is true, but there are several shades of blue, and one or two in which rosy tints prevail. There are also white, or nearly white varieties. The richer hues, such as purplish blue and violet, will be found the most effective in beds.

Heliotropes are tender plants, and ought not to be put into the garden before the end of May. While they are not really particular as to soil, they do not grow to perfection in a close, retentive medium. On this account the soil ought to be thoroughly



broken up, and if it is of a stiff, holding character it will be well to lighten and disintegrate it with burnt refuse, leaf-mould, road sweepings, and thoroughly decayed manure. The plants will require pegging down as they grow, like Verbenas, and to allow room for this they should be planted eighteen inches apart.

Propagation is generally effected by means of cuttings, which should consist of about four inches of the young flowerless shoots, taken off in September, and struck in sandy soil on a hotbed or in a propagator. When the cuttings are rooted they should be stood on a shelf in a heated house. They will not make much growth through the winter, but will go ahead in spring, and more cuttings can then be taken from the young plants. When rooted they can be put singly in small pots, and grown therein until the time comes for planting them in the garden.



HELIOTROPE CUTTINGS

A, main stem of a plant; B, a side-shoot suitable for a cutting; C, the cutting prepared for insertion.

The following are beautiful varieties of Heliotrope:—

*Adèle*. — Deep violet blue, green leaves.

*Frau Bertha Schafer*.—Heliotrope colour.

*Lord Roberts*.—Violet.

*Miss Nightingale*.—Deep blue, dark leaves.

*Swanley Giant*.—Very large rosy heads.

*White Lady*.—Very pale flowers, green leaves.

### MIMULUSES (MONKEY FLOWERS)

To mention that the well-known Musk is a Mimulus is to win sympathy for the plant immediately. The bedding Mimuluses are not fragrant, but they have large, brilliantly coloured flowers, in

most cases spotted. They bloom profusely, and remain in beauty a long time.

The Mimuluses have a special value in the fact that they will thrive in shady places. They love coolness and moisture. If seed is sown on a gentle hotbed, or in a warm greenhouse, in late winter, the plants ought to be ready for the beds by the end of May. All seedsmen sell good strains of spotted Mimuluses.

### PETUNIAS

These pretty flowers were referred to in a previous section. They are charming for beds, and they have an advantage over many plants in that they will thrive in a comparatively poor, dry soil. This should secure for them the special attention of flower gardeners who have to secure effects on thin, chalky, or gravelly soils. So long as strong plants are prepared, and watered until they are established, good results may be expected.

The London park gardeners make considerable use of Petunias, and one sometimes sees them even in the Embankment Gardens, where the air is far from pure. If they will thrive here—and they certainly do—no country amateur ought to be afraid of trying them.

The simplest way of raising a supply of Petunias is to sow seed in late winter, and set the box on a hotbed, or on a shelf in a warm house. If the seedlings are thinned as required, and pricked off a few inches apart in due course, they will make nice stuff for planting out by the end of May. They should be kept sturdy by growing them near the glass and giving abundance of air in favourable weather.

### SALVIAS

Salvias are brilliant flowers, and are largely used for pot culture, especially for winter blooming. We do not often see them used



as bedding plants in England, but Irish gardeners employ them most effectively. In the moist, mild climate of many parts of the Emerald Isle they do splendidly in the open air, and make glorious breaks of colour. *Patens*, with its flowers of brilliant blue, is particularly fine as a bedding plant. There is a white variety of it. The well-known scarlet *Salvia splendens*, is almost exclusively used as a winter bloomer under glass. If grown out of doors, *Salvia patens* should have a deep, friable, moist soil.

## FLOWERS FOR SUBURBAN GARDENS

MANY of the flowers which have been dealt with in previous chapters are suitable for suburban gardens; nevertheless, in many respects gardening near towns is conducted under conditions which differ somewhat from those existing in the country, and we deem it well to give special consideration to it. In so doing, we will not only deal with the various plants under the particular conditions which prevail in the suburbs, but devote a little attention to the laying out and equipment of small gardens.

All students of sociology have observed the great outburst of revolt against the sordid and cramping influences of town life. There is a simultaneous inflow and outflow. Labourers are leaving the country for the towns, partly as a result of the higher wages procurable in the latter, partly because they have become unsettled by a system of elementary education which has taught them just sufficient to make them discontented with the simple round of rural life, but not enough to give them well-balanced minds.

These men have brought their love of gardening with them, and endeavoured to practise it. They have not always succeeded, owing to the inability to get suitable ground, but in many cases they have done well enough to set an example to others, who have imitated them. We know of many cases in which skilful cottage gardeners from the country have exercised a considerable influence upon the townsmen among whom circumstances have placed them. Some of these were not in the lowest scale of labour. They were artisans, small tradesmen, and clerks. Practising gardening, and learning to love it, they were filled with a strong desire to get more ground, and as a result went "further out."



When a townsman gets the gardening fever, the distance to which he transfers himself from the deadly town centre is regulated by his circumstances. If he has an independence, however small, he goes into the country. This causes an interchange which maintains a steady occupancy of cottages. In view of what is called the "rural exodus," it might be expected that half the cottages up and down the countryside are empty. The truth is that it is difficult to get one. But the townsman does not always get as far as the country proper, owing to the exigencies of his daily occupation. He may have to spend five and a half days a week in a town, earning a salary that does not permit of a long railway journey. Hence he lives in the town suburbs, or in a smaller town not far away that gives, horticulturally speaking, suburban conditions.

We may expect the garden movement to go on. It will break out in Suburban Garden Associations and in Garden Cities. It will mean in either case gardening by men who are not trained horticulturists, and who can only give two or three hours of the day to their hobby, except on Saturdays, when they will have the afternoon as well as the evening. Further, it will mean gardening among houses. The farther we get from the town centre, the larger we may expect to find the garden, and the purer we may expect the air to be; but the conditions of labour will remain the same—it will be unskilled, and it will be restricted to certain leisure hours.

The really considerable degree of success which has been achieved by amateur gardeners under such conditions is a sufficient proof of the ready way in which nature responds to any fairly well directed effort to grow plants, and the obviously beneficial effects of the work, not only in beautifying one particular home, but in improving the health, spirits, and character of the householder, are in the highest degree encouraging. Two things are quite clear: the first, that it is not necessary for a man to undergo a training

in gardening, or to have a great deal of spare time, in order to make a small garden attractive; the second, that the improvement of ground has an admirable moral effect.

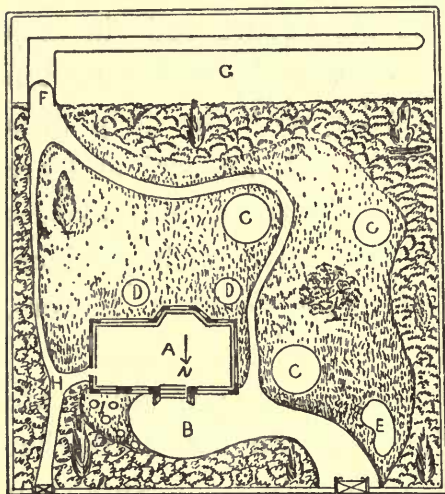
The most common cause of failure in suburban gardening is the cramming in of many kinds of plants, irrespective of their habit and their suitability for the conditions under which they have to grow. Suburban gardens might be divided into three classes: those that do not exceed three to six square rods in area and are worked entirely by the owner; those which run to ten or twelve rods and are worked by the owner with the help of a jobbing gardener; and those which extend to half an acre and are mostly controlled by hired labour. The first of these three classes is perhaps the largest. Thousands of people have such gardens, and they sometimes make the mistake of trying to grow flowers, fruit, and vegetables together.

In view of the fact that constant supplies of vegetables are brought to the doors of suburbanists daily, we do not think that it is wise to give up the precious space of a very small suburban garden to them. The most that we should do would be to grow a row or two of Peas and Beans, because it is of particular importance to have these quite fresh and unmixed, and the green-grocer's supplies do not always fulfil these conditions. We should certainly not attempt to grow Potatoes, particularly if our soil was heavy, because we should expect to be able to buy them of better flavour, and quite as cheaply as we could grow them ourselves. We should not grow Beetroot, Carrots, and Parsnips, because these roots can be bought quite fresh. And least of all should we grow any kind of greens, because the sulphuretted hydrogen that gathers about them in wet weather is very disagreeable. Celery is an admitted delicacy, but the objection to it from the suburban gardener's point of view is that it takes up more room and entails more labour than is justified by results. And good, fresh Celery is always procurable in its season.



We yield to none in our belief in the value of vegetables, and would have them grown wherever the conditions are favourable; but we have to take a common-sense view of this as of other matters, and we are firmly of opinion that a small suburban wall-enclosed garden is not the place for general vegetables. Of course, the utilisation of waste ground in our towns for allotments is a different matter. Vegetables of various kinds should be grown on them.

So far as fruit is concerned, it is equally open to doubt whether it is worth the while of suburbanists with very small gardens to attempt it. The most that should be done is to try a few cordon trees on the party fence. Larger trees, grown in the open, will take up more room than can be spared, and birds are likely to attack the buds.



A LARGE SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, C, C, flower-beds; D, D, and E, also flower-beds; F, arch for climbers; G, kitchen and fruit garden (if any); H, tradesmen's entrance; I, standard Roses; N, north.

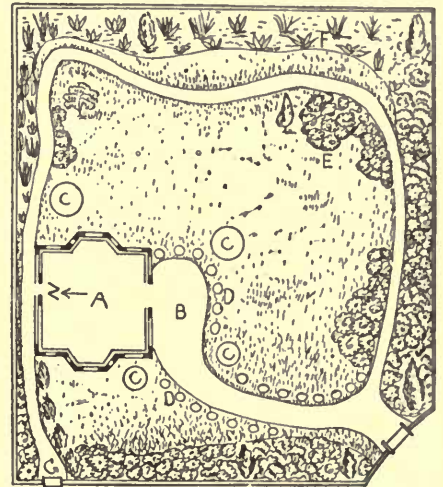
*Planning.*—It will be gathered that we believe in restricting small suburban gardens to ornamental plants, with which may be included grass. Vegetables and fruit may, however, be

planted in larger ones, especially if they are big enough to be divided into two or more sections. There is room for the display of a considerable amount of taste and ingenuity in laying out small plots. The beginner should not go along the line of least resistance, which generally leads to a border round the sides, a grass plot in the middle, and nothing more. We like the border, and we like the grass plot, but we think that in most cases a little more can be done. Perhaps the garden is a rectangle, a little longer than it is broad, at the back of a row of terrace houses, with a low

party wall or fence on each side. We may first of all endeavour to secure greater height for our creeping plants, and greater privacy for ourselves, by attaching a piece of painted or creosoted wooden trellis, about two feet high, to the wall. A foot-deep band of galvanised wire attached to the trellis, but not so securely as to be quite firm, will serve to discourage the invasion of cats. Trellis and wire together will cost very little. Then, in spite of the smallness of the garden, we may plant a few trees. It is to be feared that we cannot soar to the finest species, and must be content with Lombardy Poplars, except in one or two selected positions, of which more later. The Poplars may be decapitated about eight feet above the ground, and they will then break out from the lower part, so that, planted six feet apart, they will meet and give still greater privacy.

A walk at one side only of the garden will suffice, and it will, of course, follow the line of the border. If six inches of brickbats and clinkers are first rammed in, and then surfaced with two inches of gravel, the walk will do admirably. It should be a little higher at the centre than the sides, so that rain will run off. The border ought to be four feet wide, and the path three feet; then the width can be completed with a grass plot and another four-foot border.

We will not carry borders, paths, and grass plots uninterruptedly to the other end of the garden, but stop them a few feet away, in order to form a garden "cosy corner." This shall be screened by a trellis five or six feet high, with a narrow border at its foot in which to put plants for covering the trellis. The latter shall not



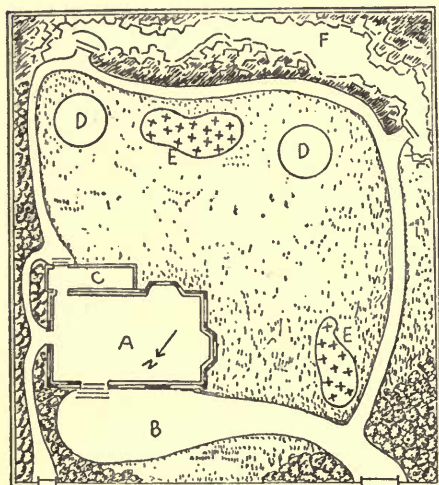
ANOTHER SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, C, C, flower-beds; D, standard Roses; E, clumps of shrubs; F, herbaceous borders; G, tradesmen's entrance.



go completely across the garden, for that would deprive us of an entrance to the "cosy corner," but there shall be an opening the width of the path, and here an arch shall be set. In one angle of the enclosure thus formed we will set a summer-house, with shrubs and one or two selected trees, such as Almonds or Laburnums, on each side of it. This will develop into a shady and secluded spot, delightful on the evenings of hot days—a place to read, write, and muse in after a trying day in a stuffy office, and

after the plants have been looked after. It adds greatly to the attractions of a suburban home to have some such quiet place as this. A few seeds of Mignonette and Night-scented Stock should be sprinkled in patches near the summer-house, as the perfume of these deliciously scented flowers will be highly agreeable on summer days and nights.



A THIRD SUBURBAN GARDEN

A, dwelling-house; B, main entrance; C, conservatory; D, D, flower-beds; E, E, Rose beds; F, rockeries; N, north.

If there is to be a greenhouse, it may stand at the opposite side of the enclosure to the summer-house. In the absence of a greenhouse, perhaps a small rockery can be formed.

The occupier of a suburban house often puts his greenhouse in the angle of the abutment (formed of kitchen, outdoor offices, and bedroom above) which forms such a common feature of rows of terrace houses. His principal object in doing this is no doubt to be able to enter it direct from the dwelling. There is some advantage in this. It is admittedly pleasant to be able to step out of a dwelling-room into a well-furnished greenhouse or conservatory. But the position is not generally a good one for plants. The house is usually shaded for the greater part of the day; and it catches falls of snow from the roof in winter, often with disastrous results to the glass.

The form of greenhouse in such a position will be a lean-to, but we prefer a span-roof in the open. If the ends run north and south, the sides will get the sun for the greater part of the day, and although the heat may be too great at times, necessitating shading, the net effect will be good.

By the inclusion of a greenhouse in the suburban garden, the amateur will be able to continue his horticultural operations for a much longer period than if he had only outdoor plants—in fact, he will be able to keep going all the year round, growing some of the beautiful plants described in our chapter on Greenhouses.

In the absence of a greenhouse, the rockery will be an interesting feature. A mound of soil can be formed, and studded with large stones, which can be got from a local builder or florist. Rock plants are delightful little gems, and so are the smaller bulbs, such as Irises, Glory of the Snow, Dog's Tooth Violets, Snowdrops, American Cowslips, hardy Cyclamens, Crocuses, and others named in our Bulb chapter.

If a Rose is particularly wanted for the arch, we recommend the glossy-leaved Dorothy Perkins. Whether it succeeds or not will depend on the purity of the air. If there are factories near, it may fail. No Roses care for impure air, and Dorothy Perkins is no exception, but it is more likely to succeed than most varieties. There is, however, a charming arch plant that nearly always succeeds in suburban gardens, and it is the small, white-flowered Clematis montana. Care should be taken to deepen the soil thoroughly, and to manure it well, for whatever climber is planted. A thorough drenching of water or liquid manure twice a week in hot weather will be a great help to the plant.

As regards shrubs for the summer-house corner, we advise the amateur to be content with some everyday, useful thing, such as the Aucuba. We are aware that it is a common shrub, and we can well understand country amateurs with large gardens planting



something more interesting; but the particular circumstances have to be considered. Aucubas do not object to conditions that would be unfavourable to most shrubs.

*Grass Plots.*—It will have been noted that we suggested grass between the path on one side of the garden and the border on the other. We favour a moderate amount of turf in a suburban garden for three reasons: (1) It looks cool and refreshing in hot weather; (2) it makes a good foil for the flowers in the border; (3) it affords space for free movements. We know of many suburbanists who make a delightful lounge of their grass plots. There are, of course, certain disadvantages. One is that the space available for flowers is curtailed, and another that mowing and rolling are necessitated. Some amateur gardeners are such determined flower-lovers that they will not give up a yard of precious space to grass. It is a matter of taste.

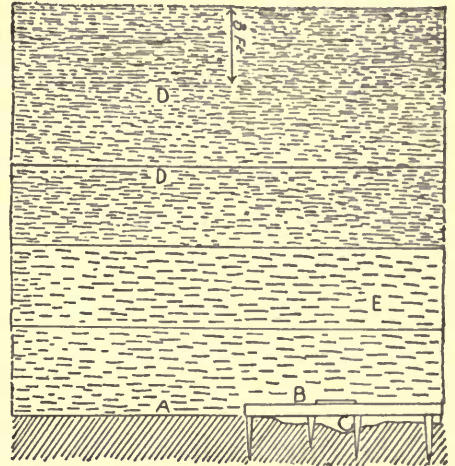
Assuming that a grass plot is to be formed, we may say that the simplest way is to get an estimate for laying turves from a local florist. The total cost, including labour, ought not to exceed £1 per square rod, less for a quantity; but something will depend upon the state of the ground when its preparation is entered upon. Many amateurs will prefer, however, to do the whole of the gardening work themselves. If they want turves they should get into touch with a builder who is about to break up pasture-land for building. If there is no such opening (and in many districts it is impossible to get turf except from such a distance as makes the freight costly), seed must be turned to. It is a question whether it is not best in any case to use seeds. It would hardly be thought that so simple a plant as grass would be susceptible to the influences of impure air, but it certainly is, and we have known of cases in which turf transferred from country to town gardens has refused to grow, apparently feeling the change too severely to be able to keep healthy. On the other hand, grass from seed came, and remained, healthy in the same garden, showing

no signs of discomfort. It is naturalised and acclimatised, so to say, from the first.

The suburbanist who sets out to make a grass plot should fix two things in his mind as absolutely essential to success: the first is a level, fine bed of soil; the second, pure seed of a specially prepared mixture. He should dig the ground over in winter, and throw the soil into lumps, letting it lie thus for a few weeks; then, in favourable weather towards the end of March or in the early part of April, it will crumble down beautifully into fine particles, and can be raked perfectly smooth and level. It should be made firm during the levelling process, as if loose it may sink in parts later on, thus giving an uneven sward.

Turning to the seed, it is advisable to buy it from one of the large seedsmen who make a speciality of lawn grasses. The names of such firms will be quite familiar as exhibitors at the great popular exhibitions. It has to be remembered that

there are many different kinds of grasses, although amateurs often speak as though grass were always the same. Some kinds are much stronger than others. It is partly because country turf is largely composed of fine varieties that it does not thrive near towns. If the soil and the district are described when the order is sent, and a mixture suitable for somewhat adverse conditions is asked for, the experience of the big seedsmen, who is daily preparing mixtures for different purposes, will enable him to provide a satisfactory blend. One pound of seed per square rod will be ample. It is well to choose a still day in the first half of April



A LAWN FROM SEED

A, ground levelled; B, straight-edge and spirit level resting on pegs; C, space to be filled up; D, D, a portion of plot duly sown; E, a portion not sown. For convenience of sowing, the plot is marked out in 3 ft. strips.



for sowing, but September is also a suitable month. Sowing should be avoided in windy weather, because the seed cannot be evenly spread, but is blown into heaps in places, while others go bare.

If the soil is lightly raked over after the sowing the seeds will be sufficiently covered, but it is a good plan to finish with a rolling. If the soil is in the right state for moisture it will not pick up on the roller. It should be neither quite dry nor saturated with moisture.

Birds must be thought of and circumvented, or the chances of getting a good sward will be reduced to a minimum. The seeds will disappear, and in place of grass will spring a network of various kinds of weeds. Covering with fish netting, or stringing black threads a few inches apart on short sticks, will suffice for protection. Whatever is used can be removed when the grass is an inch high, provided that it has come through evenly all over the ground; if not, the protection should remain on longer. As soon as the threads have been taken away the roller should be put over the plot again. It will crush down the young grasses, but that will do no harm whatever, and by pressing the soil round the roots it will encourage the emission of new fibres, from which fresh blades of grass will spring quickly. When there is a thick mat of grass from three to four inches high, the tops should be clipped off, preferably with shears or scythe, as this will encourage a further break of grass from the base. The lawn is now secure, and regular rolling and mowing will steadily improve it. Rolling is best done soon after rain, and is most effectual in spring, when the ground is comparatively soft. It will not have much influence in summer, when the ground is hard and dry. Mowing is best done when the grass is dry or nearly so. In the case of a young plot it is well to set the cutter rather high, so that the grass is not sheared off quite low down. This would bare the roots, and they might suffer in hot weather. It is not a bad plan to let the

grass fall and lie on young lawns; it causes a somewhat brown appearance as the cut grass dies, but on the other hand the roots are mulched and shaded.

A neat, straight edge is a nice finish to a grass plot, and care should be taken to prevent the encroachment of the grass on the path and border. If any one wants to judge how rapidly it would do so if not regularly clipped, let him observe how the turf and weeds at the side of country roads spread towards the middle. They often extend a couple of feet on each side in the course of a year, and have to be cut out by the roadmen.

We see that with mowing, rolling, and edge-clipping grass takes up as much time as a flower-bed of equal area, and an amateur must never settle the question of grass *versus* beds in favour of the former on the assumption that it will incur less labour and expense. That is not the way to consider it at all.

*Walls and Fences.*—The clothing these is a matter that deserves careful consideration. In small gardens the fence or wall area is very valuable; indeed, the smaller the garden the more important it is to make use of every inch of the party divisions. We have dealt with climbing and creeping plants in a previous chapter, and need not cover the whole ground again. But in view of the special circumstances, we may allude to a few plants that are useful for clothing walls and fences.

*Veitch's Virginian Creeper.*—This plant is somewhat too vigorous for the dividing walls, and may therefore be planted to cover the walls of the house. It will cling naturally. A good plant should be put in during March, in deep, rich soil, so that it may have a chance of getting well established before the hot weather comes. Veitch's Virginian Creeper thrives in suburban gardens.

*A good Variegated Ivy.*—The party wall is generally made higher between the abutments spoken of in a previous paragraph than it is lower down the garden, and a suitable plant for covering it is the variegated Ivy called *Hedera Helix rhombea*. It is more



vigorous in growth than most of the variegated sorts, and the leaves are prettily margined. To get the utmost vigour in Ivy, one must get the Irish, but that is green-leaved.

*Jasmines*.—The yellow, winter-blooming Jasmine, *nudiflorum*, is a thorough suburban plant, and it is really attractive, bearing its small yellow flowers in abundance. It is quite suitable for training against a low fence.

*Honeysuckles*.—Perhaps the best of the Honeysuckles is the variegated Japanese, which has prettily veined leaves. It is a free grower. *Flexuosa* is one of the best of the Honeysuckles that are grown principally for their flowers, and is very sweet.

*Dutchman's Pipe* (*Aristolochia Siphon*).—This quaint flower always interests people.

*Ceanothuses*.—The *Ceanothus* is a very attractive wall shrub. There are several species and varieties, mostly with blue flowers. They are not true climbers, like the Virginian Creeper, but they will cover a considerable expanse of wall if planted in good soil. They bloom profusely in summer.

*The Japanese Quince*.—*Cydonia* or *Pyrus Japonica*, the Japanese Quince, will thrive in the suburbs, and is one of the most valuable of all wall shrubs, on account of the fact that it blooms abundantly in winter and early spring. The large, single flowers of the typical species are almost of sealing-wax colour, but there are several varieties, in which the colour differs. The plant is well adapted for a low wall or fence.

*Double Yellow Kerria*.—This is another very valuable shrub for a low division. It produces long canes, which are clothed with double yellow, canary-coloured flowers.

*The Pyracantha or Thorn*.—The principal beauty of this plant lies in the berries, which are bright red in colour, and hang for a long time if the birds spare them.

Other handsome wall plants are procurable. Some amateurs may like to try the old *Wistaria sinensis*.



CATTLEYA LABIATA  
By A. Fairfax Muckley





*Annual Ramblers.*—Much can be done to beautify walls and fences in summer with annual flowers, notably *Convolvulus*, *Lathyrus* (Everlasting Peas), and *Tropaeolums* (including *Nasturtiums*).

The absence of beauty on division fences is often due to the fact that the soil is poor and dry. Particular attention should be paid to preparing the ground under walls. It must be turned over deeply, the subsoil being broken up and manured. Further, a particular point should be made of planting early in spring, except in the case of tender Annuals. A great deal can be done to keep the plants healthy and vigorous by weekly soakings of water and occasional applications of liquid manure. Light daily sprinklings are of very little use.

*Herbaceous Plants for Suburban Gardens.*—The selection of plants for the borders will give food for much consideration. In this connection we would refer readers who want full information to previous chapters, notably those on herbaceous plants and tender bedders. In these days hardy herbaceous plants hold the sway in large gardens, and there is no reason why suburban amateurs should not grow a few representatives of this large, popular, and beautiful class. A border four feet wide will not, of course, give the scope for fine colour effects which are procurable by a judicious use of fine perennials. There is not room for large groups. But handsome clumps of some good plants can be grown if the soil is well dug and manured. Let us summarise a few of the best. Double and single *Pyrethrums* thrive, and there are few plants more beautiful. They are suitable for small borders, because their habit is neat and compact. The foliage is graceful without being far-spreading. The flowers are thrown well up on long stems. They are useful for cutting on this account. On the whole, we certainly commend *Pyrethrums* to suburban amateurs. *Columbines* are delightful plants, the habit being neat and the flowers elegant, as well as charming in colour. *Snapdragons* are admirable in every way. They grow freely almost anywhere, bloom



profusely, and are brilliant in colour. If the ordinary kinds are considered too large, recourse may be had to the smaller sections, which are equally as beautiful as the larger. Pentstemons are very graceful, and the flowers are as charming as those of any hardy plant in existence. These splendid plants are growing in favour every year, and suburbanists should make a point of becoming acquainted with them. Many of the Michaelmas Daisies (perennial Asters or Starworts) are too large for small borders, but others are not, notably *dumosus horizontalis*, *ericoides*, and *alpinus*; and they are among the most beautiful. Torch Flowers (*Kniphofias* or *Tritomas*) are very handsome, but they are somewhat bulky, and we must be satisfied with one or two clumps. Chrysanthemums will do yeoman's service. They are compact in habit, and produce charming flowers. We have given special attention to this grand flower already, and need do no more now than refer our readers to the hints on colour, and selections of varieties, which appear in previous pages. Montbretias are graceful and free-blooming plants, with slender spikes of brilliant flowers rising from a mass of narrow leaves. The perennials already named, if supplemented by a few bulbs and clumps of Annuals, would suffice for the majority of small suburban borders, and they are but a few of the many splendid plants available.

*Annuals for Suburban Gardens.*—Such popular hardy Annuals as Clarkias, Godetias, Linums (Flax), Nasturtiums, Sweet Peas, Nemophilas, Saponarias, Silenes, Poppies, Candytufts, Convolvuluses, Eschscholtzias, Bartonia, Cornflower, Sweet Sultans, Portulacas, Leptosiphons, Linarias, Love-in-a-mist, Larkspurs, Mignonette, Phacelia, Virginian Stocks, and Night-scented Stock; also such beautiful half-hardy kinds as Asters, Ten-week Stocks, Marigolds, Phlox Drummondii, Nemesias, Scabiouses, Salpiglossis, and Zinnias are excellent for suburban gardens. A chapter has been devoted to them already, and we need only say that if the

selections and hints on culture which are there given are followed, a great charm should be added to gardens.

*Bulbs for Suburban Gardens.*—We have the lesson of the public parks before us to prove that bulbs play a prominent part among spring flowers. It is difficult to say what the park gardeners would do without Daffodils, Tulips, and Hyacinths. These beautiful bulbs come into a bedding scheme which consists of two annual plantings—one in autumn, the other in late spring. The beds are cleared of the summer flowers in October, and planted with bulbs, which make way in their turn in May for a fresh lot of summer plants. Amateurs may put clumps of bulbs in their mixed borders for the sake of a spring display, which will be at its best when the herbaceous plants are only just starting to grow. And they may also plant bulbs in beds, interspersed, if desired, with Arabises, Aubrietias, and Forget-me-nots; all of which can be cleared away in May to make room for half-hardy Annuals or orthodox bedding plants, such as Tuberous Begonias, Zonal Geraniums, and Ivy-leaved Geraniums and Mimuluses. We have given full directions on the culture of bulbs, as well as hints on the choice of varieties, in a previous section, and also copious notes on bedding plants.

*Roses for Suburban Gardens.*—It is with deep regret that we find ourselves unable to recommend Roses unreservedly as plants for suburban gardens. Their beauty of form, their glorious colours, their fragrance, render these magnificent flowers supreme. Unfortunately the plants do not care for town life. Impure air has a marked effect upon them. The leaves get coated with smuts, and the buds refuse to open. The plants may flower fairly well once or twice, but they steadily decline. Whether success can be achieved in suburban gardens or not depends more on the atmosphere than on anything else. We have failed to grow Roses satisfactorily in a London suburb, and succeeded admirably near a country town. If there are no factories close to the garden, and



the houses are not dense, very fair success can be achieved. But near large works, and with houses close together, Roses will probably fail.

Something turns upon culture, however. If the soil is well prepared, and strong plants of vigorous sorts are put in, the prospects of success are brighter than in a poor soil and with weak varieties. In our Rose chapter we saw that the plants like a substantial, holding soil and abundance of manure. We advised the trenching of the soil and the digging in of liberal dressings of manure. Road scrapings are good for Roses, and this material is generally procurable in the suburbs of towns. Any trouble that is taken in preparing the ground will be rewarded, and the good work thus done can be supplemented by giving generous doses of liquid manure throughout the summer, and house slops (including soapsuds) at all seasons when they are available. Most of the advertised fertilisers are soluble in water, and may be used as liquid manure. Peruvian and other refined guanos, also superphosphate, make excellent liquid manure if used at the rate of an ounce per gallon. Hoeing the soil among Roses is good practice.

It is wise to make the most of the limited energies of the plants by restricting them to a few shoots and flowers. Half-a-dozen branches will be better than twice that number. The clusters of flower-buds may be thinned down to one in each case, except in certain bunch-flowered varieties like Gruss an Teplitz.

We gave a list of good Roses in Chapter I., but the trial of a considerable number of newer varieties since that was written, in which we have found some charming varieties, induces us to give a further list. They comprise representatives of various classes.

#### HYBRID PERPETUAL ROSES

The Hybrid Perpetual Roses, with their large, richly coloured, highly perfumed flowers, are a very popular class, and they are

invariably prominent at the exhibitions. Of the newer varieties of these we should give prominence to the following :—

*Red Shades*

Commandant Felix Faure. | Hugh Dickson. | J. B. Clark. | M. H. Walsh.

*Rose and Pink*

David R. Williamson. | Lady Overtown. | Mrs. Cocker. | Rosslyn.

Hugh Dickson is a fine crimson, and does well late in the season. It is nicely scented. J. B. Clark is also a good Rose. We are not sure that this is rightly classed among the Hybrid Perpetuals, but the classification of Roses is a highly debatable question.

Frau Karl Druschki remains the best of the newer white Hybrid Perpetuals, and it is much to be regretted that this splendid variety, with its grand flowers, is scentless.

TEA ROSES

The Tea-scented Roses are a lovely class, as they unite pretty leaf-tints with charming flowers, and all are scented. The following are among the most beautiful of the newer varieties :—

*White or Blush*

Peace. | Comtesse de Saxe. | Mrs. Myles Kennedy.

*Rose, Red, and Carmine*

Mrs. B. R. Cant. | Corallina.

*Lemon to Orange*

Harry Kirk. | Hugo Roller. | Mrs. Dudley Cross. | Souvenir de Stella Gray. | Sulphurea.

With reference to the above, Peace is one of the best varieties that we have for late blooming; it flowers freely, and the flowers



are handsome. The colour is white to lemon. Comtesse de Saxe is a very pleasing white.

Corallina is a very valuable variety, as it forms a large bush, blooms abundantly and late, and is of a distinct shade of coral red. It would be as likely to do well in a suburban garden as any of those named. Harry Kirk is a very pretty sulphur-coloured variety, and although there are many yellows of various shades, it is likely to hold a high place in public esteem. Mrs. Dudley Cross is a very distinct tint, which has been described as chamois yellow. It is a very attractive variety. Souvenir de Stella Gray, orange and yellow, is extremely pleasing.

### HYBRID TEA ROSES

By far the largest number of new Roses belong—or are said to belong by their raisers—to the Hybrid Tea class. They comprise some of the most beautiful of Roses, and are sure of an abiding place in the favour of rosarians. The following are some of the best of the newer varieties:—

#### *Pink and Rose*

Gustave Grunerwald.	La Tosca.	Earl of Warwick.
Betty.	Elizabeth Barnes.	Pharisaer.
Lady Ashtown.	Wm. Shean.	Prince de Bulgarie.
Lady Helen Vincent.		

#### *Yellow, Salmon, and Orange*

Instituteur Sirdey. | Madame Melanie Soupert. | Marquise de Sinety. | Le Progrès.

#### *Scarlet, Carmine, and Crimson*

Souvenir de Maria Zozaya.	Ecarlate.	Mrs. A. M. Kirker.
Dean Hole.	General MacArthur.	Richmond.
Edu Meyer.	Madame J. W. Budde.	Warrior.
Avoca.		

#### *Cream*

Florence Pemberton. | Frau Lilla Rautenstrauch. | Mrs. T. Roosevelt.

Where all are so beautiful it is very difficult to make a choice. Lady Ashtown is a charming pink, and Lady Helen Vincent a pink with a yellow base. Earl of Warwick is a fine salmon pink. Edu Meyer is coppery red with a salmon shading. Madame Melanie Soupert is a very pretty salmon-coloured variety, which blooms freely and has a particularly neat flower. Marquise de Sinety is a rich yellow inclining to orange. Ecarlate is a particularly vivid scarlet, and General MacArthur a splendid crimson, bearing abundance of flowers. These are two of the best of the deeper coloured Hybrid Teas. Mrs. T. Roosevelt is a fine cream-coloured variety, with large, handsome, substantial flowers. It ought to become a great favourite for exhibition.

#### DWARF SINGLE ROSES

A class of low-growing single-flowered Roses has been introduced, with flowers of great beauty. Three of the best are:—

*Irish Elegance*, bronzy orange. | *Irish Engineer*, scarlet. | *Irish Glory*, silvery pink.

Of these Irish Elegance is the most desirable. It is a beautiful and very distinct variety. Exquisite sprays of it can be cut for vase decoration.

#### TWO BEAUTIFUL CONTINENTAL HYBRIDS

Two of the most distinct Roses that we have are:—

*Gottfried Keller*, apricot, semi-double. | *The Lyon*, coral, tinted chrome.

These are hybrids of Continental origin. The latter is a particularly interesting variety. It is supposed to have Austrian Brier blood in its veins, and is classed as a Hybrid Pernetiana Rose—quite a new section.

#### JAPANESE ROSES

The Japanese Roses (*Rosa rugosa* varieties), with their rough leaves, large flowers, and huge hips, are useful for forming large



groups, and have not hitherto been held in very high esteem for their flowers, but the modern varieties have charming blossoms. The following are both beautiful:—

*Conrad F. Meyer*, rose.

| *Nova Zembla*, white.

The former is a splendid variety, with large double flowers, and adds new value to the class. The latter is a white sport from it.

#### DWARF POLYANTHA ROSES

These delightful little Roses are among the most interesting of the whole genus. They are of neat, bushy habit, and they bear their flowers in bunches. The colours are bright and varied. It will give the reader an idea of this class if we ask him to imagine the popular arch Rose Dorothy Perkins as a low bush plant, say two feet high and the same through, with bunches of flowers similar to those which it bears on arches, but the clusters somewhat smaller. There are two or three such sorts, and there are other varieties of different colour. Here are the names of a few:—

*Cecile Brunner*, rose.

*Leonie Lamesch*, copper.

*Madame N. Levasseur*, crimson.

| *Maman Levasseur*, pink.

*Mrs. W. H. Cutbush*, pink.

*Phyllis Merryweather*, pink.

Madame N. Levasseur is the dwarf Crimson Rambler. Maman Levasseur is the variety called by British florists the Baby Dorothy, as it is a non-rambling form of Dorothy Perkins. Both Mrs. W. H. Cutbush and Phyllis Merryweather might be similarly described, and they are superior to Maman Levasseur. Either of these, with Leonie Lamesch, would make a charming pair of representatives of the Dwarf Polyantha Roses.

#### DWARF CHINA ROSES

This class somewhat resembles the foregoing in habit. The plants are dwarf, bushy, and covered with pretty little flowers.

They make beautiful beds. The following are a few of the best:—

*Madame Laurette Messimy*, rose. | *Madame Eugène Résal*, red. | *Queen Mab*, apricot.

CLIMBING ROSES

With the selection given in the first chapter may be considered the following newer varieties:—

<i>Blush Rambler</i> , blush.		<i>The Lion</i> , crimson, single.
<i>Electra</i> , lemon.		<i>Trier</i> , cream.
<i>Kathleen</i> , carmine, white eye.		<i>Elisa Robichon</i> , salmon Wichuraiana.
<i>Leuchstern</i> , bright rose.		<i>Minnehaha</i> , pink, like Dorothy Perkins.
<i>Mrs. F. W. Flight</i> , pink.		<i>Madame René André</i> , cream.
<i>Philadelphia Rambler</i> , dark crimson.		<i>Paradise</i> , pink and white, single.
<i>Tausendschön</i> , pink.		<i>Climbing Frau Karl Druschki</i> , white.

The hints on pruning given in Chapter I. apply equally to Roses grown in suburban gardens.

We advise suburbanists who are in doubt as to whether Roses might be expected to succeed in their gardens to try a few vigorous varieties first of all, and if the results are satisfactory they could increase the collection. The following would be good to start with:—

*Hybrid Perpetuals*

Mrs. John Laing.		Frau Karl Druschki.		Xavier Olibo.
Ulrich Brunner.		Hugh Dickson.		

*Teas*

G. Nabonnand.		Peace.		Corallina.		Anna Ollivier.
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*Hybrid Teas*

Augustine Guinoisseau.		Madame Abel Chatenay.		Richmond.
Grüss an Teplitz.		General MacArthur.		Caroline Testout.

*Carnations in Suburban Gardens.*—The Carnation is a genuine town garden plant. Some of the most famous of Carnation growers have cultivated their favourites in or near a town. The fact is, the Carnation has none of that susceptibility to the influences of



impure air which makes the Rose so tantalising. We do not say that, other things being equal, Carnations will not thrive better in pure country air than in the atmosphere in or near a town; but knowing as we do how well town and suburban growers manage them, and that some of the principal exhibitors for many years past, and at the present day, have grown this popular plant in and near towns, we have no hesitation in recommending suburbanists to give special attention to it. Many amateur gardeners love to take up one particular flower and concentrate attention on it. They find that they get more pleasure and satisfaction from this than from spreading their energies over a large number of kinds. To those of this class who garden near towns the Carnation may be warmly recommended. It responds to specialisation in a remarkable way, yielding magnificent flowers. The collection may be grown either in the garden or under glass, or partly under both conditions. Exhibitors mostly make use of glass. The cultural hints and selections of varieties given in the special chapter devoted to Carnations apply to suburban as to other conditions of culture, and we need, therefore, do no more in this section than draw the attention of amateur gardeners to this splendid plant as one which ought to suit their circumstances admirably.

*Auriculas in Suburban Gardens.*—As in the case of the Carnation, so in that of the Auricula, some of the most successful growers and exhibitors have been town and suburban gardeners. One of the finest collections of prize Auriculas which it was ever our privilege to see was grown by a working cutler in the heart of smoky Sheffield. The Auricula has none of the majesty of the Rose, none of the fluttering grace of the Sweet Pea, none of the massive beauty of the Chrysanthemum. It is a tiny plant, retiring and modest. But it has a charm, a winsomeness, which appeal powerfully to lovers of refined flowers. It is a dainty little floral gem, pretty in form, pleasing in colour, and delightful in perfume. Suburban not less than country gardeners who want to specialise

one or two particular flowers might do worse than consider the claims of the Auricula. It will not give brilliant effects either indoors or out, but it will always be interesting. Being an ever-green plant, it will have something to show, if only healthy leaves, throughout the whole of the year.

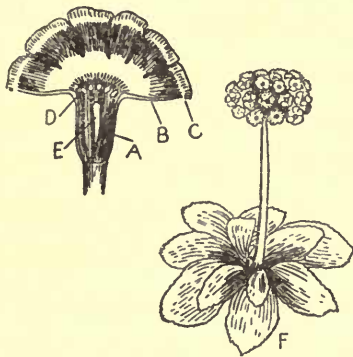
#### CLASSES OF AURICULAS

Florists put Auriculas into two main classes—the Stage (or Show) and the Alpine; but a third class, called Border Auriculas, is recognised nowadays, when hardy plants are used so much. The last are generally raised from seed. The Stage Auriculas are subdivided into Green-edged, Grey-edged, White-edged, and Self. In the case of the first three the distinctive term springs, as would be supposed, from the colour on the margin of the flower. Within is the “paste” or meal. The Selves are not, as might be expected, of one colour only; they also contain paste, as well as a distinctly coloured tube, but flowers with yellow and dark margins are called Selves. The Alpines have no paste. They are generally larger than the Stage varieties, and the plants are hardier. The Border Auriculas are really Alpines.

The Auricula is specialised as a florists' flower, the same as Roses, Dahlias, Sweet Peas, Daffodils, Carnations, and Tulips. There are Societies devoted to it and its connection the Primula (botanically all Auriculas are Primulas), and Auricula Shows are held in London and one or two provincial centres in spring. The Auricula has not so numerous a following as the Rose, the Sweet Pea, and the Daffodil; indeed, the rise of the last-named flower has doubtless affected the Auricula as a specialist's flower. It has a difficulty in holding its own. The old lovers of the flower die out, and the rising generation grows something else. The state of affairs which exists may be judged by the fact that only a small handful of trade florists maintain representative



collections nowadays, whereas hundreds keep large stocks of the other flowers named. The difficulty which the Stage Auricula has



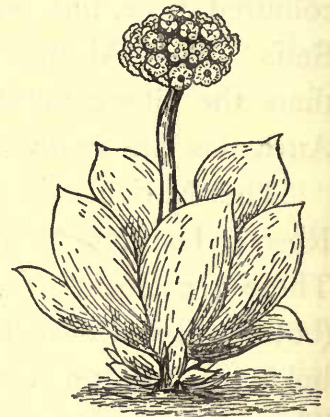
STAGE AURICULA

A, tube ; B, body ; C, edge ; D, anthers filling mouth of tube ; E, stigma low down in tube ; F shows general habit of plant.

to maintain its position is not wholly due to the competition of the Daffodil, but arises in part from the fact that it is of little use as a border plant. We are full of decorative gardening in these days, and a plant which will not lend itself to the formation of effective beds and borders runs considerable risk of going to the wall. The old florists always grew their Auriculas in pots under glass, generally in frames, and that is really the only way of getting good results from them. It is true that

the plants are hardy enough to live out of doors, but the meal or paste of which we have already spoken, and which in combination with the even margin of green, grey, or white gives the flower its exquisite refinement, would be affected by rain, and the beauty of the flowers would be spoiled.

The flower of a florists' Auricula may be said to consist of four distinctly marked parts—the tube, the paste, the body colour, and the edge. It must be round and flat, and the edge must be quite even and smooth. A jagged, quartered, or uneven flower might have pleasing colours, but it would possess no charms for the true florist. The tube should be of a clear lemon, canary, or yellow shade, and quite circular. The anthers will be prominent in it, but the stigma will be hidden. The paste or meal which surrounds the tube should be dense and white ; if patchy or cloudy the flower is imperfect. The ring of colour round the paste should



ALPINE AURICULA  
Showing offsets growing.

be perfectly even and solid, and the band of colour on the edge should also be an even circle, whether green, grey, or white.

It might be thought that such perfect banding as this would be impossible of attainment, but if well-bred varieties are grown they will respond quite in the way that the grower wants to good cultivation.

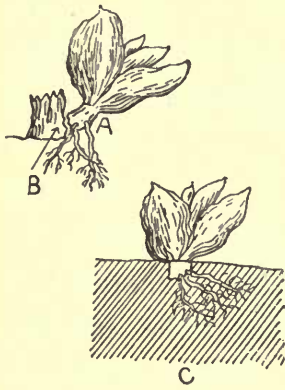
The Alpines are less elaborate, inasmuch as they do not contain any paste. There is a central colour—yellow, white, or cream—and an edging in the form of a broad band, generally of a dark colour, but somewhat paler at the edge than at the interior. They are more showy flowers than the Stage section, and are perhaps more popular with the general public; certainly some of the fine modern Alpines are great favourites. Being hardy, and having no meal to be spoiled by rain, they are admirable for garden culture. They may be used as clumps in borders, or rock-work, or in beds, either alone or in association with Tulips. We fear that we cannot say that they are ideal spring flowers for town gardens, although the frame Auriculas may be grown in towns, as we have stated already.

#### CULTURE OF PRIZE AURICULAS

An amateur who wanted to grow a collection of Stage and Alpine Auriculas in pots, with which to compete at exhibitions, would be wise to face the expense of making a start with named varieties of recognised standards. Judges are familiar with these varieties, and expect to see them. They would not pass over a really good seedling because they did not know it under name; on the contrary, they would cluster round it eagerly, and compare it with the best of the standard varieties. But really good seedlings are few and far between. A collection of ordinary ones would not stand a ghost of a chance against a collection of named varieties. Prize Auriculas may be expected to cost from one-and-



sixpence to half-a-guinea a plant. Most of the leading varieties can be bought for half-a-crown each. If this is complained of as



AURICULA—PROPAGATION

Offsets severed from parent plant.

A, offset with a few roots attached; B, parent plant stem; C, offset inserted in soil.

dear, it must be said that Auriculas can never be really cheap, because they increase very slowly, and trade growers are unable to work up a large stock of them quickly. They are propagated by means of offsets, which are taken off late in winter and put in small pots. We must not be understood as contending that Auriculas of a sort cannot be raised fairly quickly. The plants grow readily from seeds if these are sown as soon as they are ripe; but the point is that the plants resulting cannot be relied upon to come of anything like the quality of their parents. So

far as garden Auriculas are concerned, there need be no hesitation in growing them from seed, just like hardy Primulas and Polyanthus. If seed is got from one of the florists who make a speciality of these plants, charming varieties are sure to result. The seed may be sown in May or June, in fine, moist soil in the open, the seedlings thinned, transplanted in due course, and put in the beds or borders in autumn. They will flower the following spring.

Pot Auriculas thrive in a compost of four parts fibrous loam, one each of leaf-mould, decayed manure, and sand, all well mixed.

Prize Auriculas are repotted annually, and the work is done soon after flowering. It ought not to be done later than July. Five-inch pots are a suitable size, and many growers use glazed instead of ordinary porous pots. They find that the plants do perfectly well in such pots, and the surface of the pottery never gets green and



AURICULA—POTTING

A shows old ball of soil reduced; B, drainage, and rougher parts of compost in the bottom of the pot; C, space left for watering.

slimy. Whatever kind of pots are used, they should be drained with an inch or so of crocks and lumps of soil, such as flakes of leaf-mould. The soil should be pressed firmly round the plants, but not made absolutely hard. The plants should be replaced in the frame, on a bed of cool ashes or a low wooden stage, and kept close and on the dry side for a week, by the end of which time the roots ought to be working freely again. Attention to watering and ventilating will be all that is requisite until February, when the plants may be deprived of any offsets which have formed, and top-dressed. It is customary to place the frames in positions facing north during the summer, and facing south during the winter.

A sharp look-out should be kept for the Auricula louse and for green fly, which must be brushed away before they have time to spread and cause injury.

Auriculas grown for garden decoration in late spring may consist entirely of mixed seedlings, but there are certain select named varieties grown which are particularly fine, and well worthy of special attention. Border Auriculas, like most of the Primrose family, love a cool, holding soil. They do not care for poor, dry, sun-baked spots. They make delightful beds in May, and may be associated with Cottage and Darwin Tulips if desired; but care should be taken to plant thinly, because these Tulips are very strong growers, and need a good deal of room. The Auriculas may be lifted after flowering, the decaying trusses picked off, and planted in a spare bed. They will come in again for future use.

Having touched upon the principal points in the culture of Auriculas, we may now proceed to give selections of varieties, including some from the various sections.

<i>Green-edged</i>	<i>Grey-edged</i>	<i>White-edged</i>	<i>Selfs</i>
John Garrett.	Colonel Champneys.	Acme.	Black Bess.
Julian.	George Rudd.	Heather Bell.	Heroine.
Rev. F. D. Horner.	Richard Headly.	Reliance.	Mrs. Potts.
			Ruby.



*Alpines*

*Celtic King*, a splendid yellow border variety.  
*Dean Hole*, maroon, yellow centre.  
*Old Double Yellow*, a scarce and interesting sort.

*Masterpiece*, purplish maroon, yellow margin.  
*Mrs. Harry Turner*, purplish maroon, cream centre.

*Chrysanthemums for Suburban Gardens.*—The Chrysanthemum is one of the great flowers of the suburban gardener. From the earliest days of the Golden Flower being specialised in this country it has been grown by suburbanists, and it is worthy of note that the National Chrysanthemum Society was founded in a London suburb. Amateurs grow Chrysanthemums both in pots and borders: in the former, for the decoration of their conservatories in autumn; in the latter, for giving border beauty in August, September, and October. As we have given a special article to the Chrysanthemum, giving details of culture and full selections of varieties, and as the system of management is practically the same in all cases, we need not deal with the flower at any length here; but we are very desirous of encouraging suburbanists to make the utmost use of this magnificent plant, and as an incitement to them to grow it we may remind them of the splendid displays which are to be found in the London and provincial town parks in autumn, as well as in the gardens and greenhouses of countless town amateurs. Several large Chrysanthemum nurseries are to be found within the confines of London and other large towns. We will admit one difficulty, which is greater in town than in country gardens, that of the flowers “damping” in foggy weather; but it is not general in most seasons, if the management is good.

*Sweet Peas in Suburban Gardens.*—Suburban gardeners have not failed to take note of the wonderful development of the Sweet Pea, and to press some of the exquisite modern varieties into their service. Fortunately the Sweet Pea is a very good suburban flower. We have seen it fail in the immediate vicinity of gas-



BELLADONNA LILIES  
By Hugh L. Norris





works; but that even such unsuitable surroundings are not fatal was proved by the fact that 100 yards away another set of plants was thriving. We may refer suburbanists to the special chapter on Sweet Peas for information as to culture and varieties, emphasising the fact that vigorous seedlings and deep, well-manured soil are of the greatest importance. If we had to grow Sweet Peas in gardens much closed in by small houses, or near factories, we should devote particular attention to raising very strong, sturdy plants in pots or boxes. If we had no glass we would go to the expense of a frame, which would not cost much. With good potting soil, and attention to watering and ventilation, we should expect to get strong plants. We would put twigs in the pots, and let the seedlings run to about nine inches high before putting them out. After planting them we would see that they never suffered from dry soil until they had got into thorough going order, and we would freshen them up frequently with the syringe. Knowing as we do of many amateurs who grow Sweet Peas successfully in the suburbs, we have no hesitation in recommending all amateurs who have not already tasted the pleasures of Sweet Pea growing to resolve that not another season shall be lost. We believe in the regular picking of Sweet Peas while the flowers are young in all cases, and it is particularly advisable in suburban gardens. Though the plants love sunshine, it is no serious disadvantage if they miss the sun for three or four hours in the day. The salmon, orange, and thin-petalled scarlet and crimson varieties soon lose their freshness in hot sun. Regular hoeing will help to keep the plants growing, and soakings of liquid manure once or twice a week (not dribbles every day) will be stimulating and beneficial.

*Dahlias in Suburban Gardens.*—The Dahlia is not an ideal suburban plant, partly because it likes a cooler, moister, and richer soil than generally prevails, partly because it is bulky and makes greater demands on space than can be met in many cases. In small gardens we would rather rely on the smaller Michaelmas



Daisies and early Chrysanthemums for late summer and autumn bloom than on Dahlias, and if these two splendid plants are well selected and grown the Dahlias will never be missed. However, we are far from saying that Dahlias are impossible suburban plants. Given rich, moist soil and sufficient room, they may very well be represented. A Dahlia lover who felt that he could not provide reasonably promising conditions for the large double and Cactus Dahlias might try the Pompons. They are very pretty, and they will do with a poorer soil than the rest. Hints on culture and varieties have been given.

*Pansies and Violas in Suburban Gardens.*—As confirmed lovers of moist, cool soil, Pansies are not perfect plants for suburban gardens, where the ground is often hot and dry; but it is not impossible to grow them successfully, as we have proved by our own experience. We have even planted them at midsummer; but special precautions had to be taken in the way of shading. It will be well for any suburbanist who wishes to grow Pansies to thoroughly dig the soil in winter, and if possible work in a liberal dressing of cow manure. Further, he would be wise to plant early in spring, so as to give the plants a good chance of getting established before the hot, dry weather of summer came. Then, with hoeing and watering, he ought to get some nice flowers. Until he had felt his way, it would not be wise to buy expensive named varieties; he should begin with seedlings, which he can raise himself by sowing a packet of seed in a box in a greenhouse or warm frame in winter, thinning, pricking-off, and planting out in due course. Probably more amateurs will wish to grow Violas than Pansies, and in this case named varieties may be selected from the list given in a previous chapter and planted early in spring. They will thrive if good soil is given, and a weekly soaking of water is supplied. There should of course be regular hoeing.

*Irises for Suburban Gardens.*—The Great German or Flag Irises are almost ideal plants for town and suburban gardens. They care

for nothing. Bad air, poor soil, drought—all these bugbears of plants the German Iris will endure, and even thrive in. With their thick rhizomes they are able to withstand drought almost as well as a camel. We do not, of course, say that the Flag Irises give the very best that is in them in town gardens. Like the rest of planthood—and humanity too, for the matter of that—they enjoy the good things of life. In pure air and in rich, deep soil, they make growth of the utmost luxuriance, and throw up tremendous flower spikes, crowned by huge blooms. But the point that we have to keep before ourselves in the present connection is that they can dispense with luxuries and still give good results. Those town and suburban amateurs who have poor, dry soil and a hot position to contend with should make the Flag Iris one of their principal plants. They might even specialise it to the extent of growing a collection of the best varieties. To meet the wants of those who may like to follow this course, we may give a somewhat larger selection than that suggested on page 87, Volume I.



GERMAN IRIS—DIVIDING  
ROOT-STOCK

A, A show how to divide the root-stock, and B shows how the parts may be still further reduced.

SELECT GERMAN OR FLAG IRISES

- Atropurpurea*, dark purple, rich colour.
- Duchess de Nemours*, pale heliotrope.
- Darius*, lilac with white margin, orange beard.
- L'Innocence*, pure white.

- Madame Chereau*, blue and white.
- Othello*, blue.
- Pallida*, lavender, very fine.
- Pallida Garibaldi*, lilac and rose.
- Sans Souci*, yellow, brown veins.

They may be planted in autumn or spring. Established plants should be divided and planted in fresh soil when the root-stock gets very much matted.



It should be noted that the Japanese Irises (*laevigata* or *Kaempferi*) are totally different from the Flags, requiring a moist soil. They are magnificent plants, but they are not suitable for the majority of suburban gardens.

The English and Spanish Irises will thrive in suburban gardens, and they are both beautiful and cheap. They are not rhizome rooted, but bulbous, and dealers supply them in autumn with Hyacinths, Tulips, and other bulbs. Although smaller than the Flags, the flowers are little less beautiful. Dealers offer named varieties of both classes, but it is scarcely worth while to buy them, as there are no shows for them, and practically no discussion on the different sorts. Mixed bulbs will do quite well.

The foregoing notes on some of the most useful plants for small gardens, with the fuller remarks in previous chapters, will, it is hoped, be of assistance to suburban amateurs. We need not deal at length with plants for the greenhouse, supposing such a structure to be erected, because a comprehensive chapter has been devoted to greenhouses and suitable plants for them; but we may let fall the hint that the plan of specialising one or two particular classes of flowers, which is so popular nowadays with garden plants, is by no means without advantages for the greenhouse. An amateur with a warm house may, for instance, make a speciality of Zonal Geraniums, which will form a beautiful display in winter if a minimum temperature of 50° can be maintained. No genus of plants, indeed, will do more to brighten a greenhouse at the dull season. In the case of an unheated house bulbous and allied plants, such as Spiraeas, Dielytras, Lilies of the Valley, Christmas Roses, and Deutzias must be drawn upon largely.

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We have spoken hitherto of quite small suburban gardens, at the back of terrace houses. More may, of course, be done in the larger gardens belonging to semi-detached and wholly detached

villas further out. When these are situated in purely residential districts the conditions almost approximate to those in the country, and even Roses can be grown successfully. Owners of such gardens may have a somewhat more elaborate plan, and in some cases at least they can introduce fruit and vegetables if they wish. We should, however, recommend that flowers still be given pride of place. Vegetables are excellent in their way, but they do not add one iota of the pleasure and interest to a home that flowers are capable of yielding. The few shillings a month that they save in the greengrocer's bill amount to little compared with the gratification of seeing beds, borders, and rooms full of beautiful and fragrant flowers. In any case, as vegetables and fruit do not come within the scope of the present work we must pass them over.

*Pergolas and Arches in Suburban Gardens.*—There are one or two features of interest worth mentioning for the larger and more airy suburban garden which are not quite appropriate for those that are severely restricted in area. One of these is a pergola, or series of connected arches. Those who are prepared to go to such trouble and expense as are entailed by getting the requisite quantity of poles will be repaid by the beauty and interest of the erection when complete. On pages 271 and 272 of the present volume we give practical illustrations of pergola erection, showing a ground plan, how to embed the posts, and how to connect the top timbers. Further, we give hints on the class of wood to employ and how to treat it. Suggestions for selecting plants to cover the pergola are offered. We can hardly advise any particular suburban amateur to plant the beautiful Roses named on page 272, and other climbing varieties mentioned in the present chapter, without knowledge of his circumstances; but if the air is fairly pure he may certainly feel his way with a few of them, filling up the first year or two with plants grown from seed, such as Canary Creeper, Convolvulus, Ornamental Gourds, Cobaea



scandens, and tall Nasturtiums. If experience prove that the Roses tentatively planted do well, he may drop Annuals in future and plant more Roses.

More arches may be introduced with the greater number of sections into which the garden is likely to be divided. We do not believe in putting up arches merely for the sake of doing it. We would not, for instance, put an arch in the middle of a lawn, although we might construct an arbour there. We would not put one over the middle of a path merely for the pleasure of walking under something. But we would certainly introduce arches wherever there was a legitimate opening for them, because they break up the uniformity of a garden. As indications of appropriate places for arches we may mention the junction of flower and kitchen gardens, and entrances to sections divided off by hedges, shrubs, or trellis-work. See pages 268 to 271 inclusive for practical hints on the formation of arches.

*Herbaceous Borders in large Suburban Gardens.*—One immense advantage which the large suburban garden will enjoy over its smaller neighbour is the capacity for providing a capacious herbaceous border. We have seen that something can be done even with a four-feet border, but to get a thoroughly effective one we ought to have a width of eight feet at least. This permits of introducing large clumps of such plants as Paeonies, Delphiniums, Hollyhocks, Ox-eye Daisies, Phloxes, the larger Michaelmas Daisies, Chrysanthemums, and other bold, richly coloured things. The planter does not feel himself skimmed and pinched for room. He can give rein to his fancy. He has a sense of breadth and freedom.

With a really good herbaceous border no garden can be wholly ineffective. It has one great outstanding feature at least which raises it above mediocrity. And the border will not only be beautiful and interesting as a whole; it will yield large and constant supplies of flowers for carrying into the house. We gave

full instructions on the preparation and planting of herbaceous borders.

*Shrubs in Suburban Gardens.*—The suburbanist with a fair amount of room can also add to the interest of his garden by planting more shrubs. He is no longer compelled to restrict himself to a few Aucubas and Laurels, introduced as much for their services as blocks and screens as for their intrinsic beauty. He can add flowering shrubs. The majority of these lose their leaves in autumn, the same as herbaceous plants, so that they are not of very much value for forming screens. Nor should they be looked upon as stop-gaps. They should be introduced with the deliberate object of adding direct beauty to the garden with their foliage and flowers. Many of the best flowering shrubs thrive in suburban gardens where the air is fairly pure, if the ground is well prepared for them and the general culture is good. A great deal depends upon the preparation of the soil. This should be as thorough as for Roses—that is, it should be bastard trenched and manured so as to get a depth of about two feet. While the majority of flowering shrubs will do better in cool, holding soil than in light land, they will thrive in the latter if it is well prepared.

The majority of the flowering shrubs bloom in spring, but some excellent kinds can be got which will blossom at other seasons; indeed, it is possible to have beauty almost throughout the year, as a few actually flower in winter. We will draw attention to some handsome shrubs which will flower at different periods.

We must not expect much bloom in the winter, but there are a few kinds which will flower in that quarter. One of these is the Glastonbury Thorn. The Thorns belong to the botanical genus *Crataegus*, and the Glastonbury Thorn bears the botanical name of *Crataegus Oxyacantha praecox*. *Crataegus Oxyacantha* sounds formidable, but it is really neither more nor less



than the common Thorn. *Praecox* (will the reader please think of the word "precocious" as a help to remembering this name?) is merely an early flowering form of the common Thorn. Some readers will be familiar with the story of how Joseph of Arimathea visited England with the Holy Grail, and founded the first Christian church built in this country at Glastonbury, in that county of pastures and cider orchards, Somersetshire. Joseph is said to have thrust his staff into the ground; it rooted, and "ever afterwards" the tree blossomed on old Christmas Eve. As a matter of fact the Glastonbury Thorn often flowers in autumn.

We have already referred to the Japanese Quince, *Cydonia* (or *Pyrus*) *Japonica*, as a winter bloomer, mentioning it in connection with wall plants. It may be grown in the open if desired. This shrub has become so popular, partly on account of its early flowering and partly because of its large and brilliant blossoms, that florists have given attention to it, and several varieties, differing in the colours of their flowers, are procurable. It does not generally flower until late in winter, but a good deal depends upon the weather.

A shrub that may be grown in a sheltered part of the open shrubbery, but is perhaps better on or near a wall, is *Chimonanthus fragrans*. It is not a popular plant, possibly because there is nothing showy about it, but the flowers have a distinct and very powerful fragrance. It is worth growing.

The winter Jasmine, which was mentioned under wall plants, takes rank as a shrub, and may be grown against a pole in the shrubbery. It is, of course, a pronounced winter bloomer, and a first-class town plant.

*Daphne Mezereum* is a delightful winter and early spring shrub. It is of dwarf, upright, neat habit, and consequently does not take up a great deal of room. It has small, pinkish, very sweet flowers. The plant is not very particular as to soil, and does well in suburban gardens.

Some of the *Magnolias* are early bloomers, and among them the beautiful species *stellata* ranks very high. It has large, pure white flowers, which are borne in advance of the leaves, and which clothe the stems in a snowy star-mantle of bloom. *Magnolia stellata* flowers freely in quite a small state, and is consequently suitable for comparatively small borders.

*Forsythia suspensa* is a very early bloomer, and in mild winters is out before the spring quarter begins. It produces long, slender canes wreathed in bright yellow flowers, and grows almost anywhere. It must be regarded as one of the best of early flowering shrubs, and should not be omitted, however small the collection.

The flowering Currant, *Ribes sanguineum*, is a very early flowering shrub, which makes itself at home in nearly all kinds of soil, grows freely, and blooms profusely. It is really a valuable plant to the amateur, on account of its happy and accommodating nature, and its generosity in flowering. The typical plant has rose-coloured flowers, but there is an inexpensive white form, and several special varieties that cost a little more.

The queen of the spring-flowering shrubs is undoubtedly the *Rhododendron*, a noble plant, alike in habit, foliage, and bloom. We should not attempt its culture in small, much enclosed gardens quite close to factories; not that it is a weakling, but because it must be grown with suitable surroundings in order to look its best. A small plant stuck among other shrubs is apt to look insignificant, especially if bare at the base; but even a solitary *Rhododendron* looks well if somewhat isolated, surrounded by grass, and clothed with foliage quite to the base. Of course, *Rhododendrons* look best of all when they are planted in a group at some distance from the house, with a broad belt of grass in front of them.

The *Rhododendron* likes, and is worthy of, special treatment. It does not care for a stiff, cold, damp soil, and it absolutely detests a limestone one, refusing to grow in such a medium as the latter. It likes peat, and it enjoys fibrous loam, as indeed do most plants.



An amateur who particularly admires Rhododendrons would be well advised to carefully consider the soil question, and if his own ground is unsuitable, remove the soil to a depth of two feet where he proposes to plant Rhododendrons, and substitute a mixture of peat and loam. The cost ought not to be so heavy as to counter-balance the pleasure derived from success with the grandest hardy shrub grown. The position also should be considered. One protected from strong, cold winds is desirable. Rhododendrons may be planted at almost any time from autumn to spring, but they rarely shift better than in April, late as this month seems for planting. Of course they could not be expected to succeed when planted in spring if exposed to cold winds and insufficiently watered.

Rhododendrons bloom during winter in very mild, moist districts in the extreme south-west of England, but further north they flower in spring, sometimes nearly at the end of that quarter. When they are planted in positions where the heat of the midday sun is intercepted the flowers last a long time in beauty. They ought to be picked off when they fade, but not so low down as to injure the new buds which will probably have formed at the base of the flower truss. The following are beautiful varieties:—

*John Waterer*, crimson.

*Michael Waterer*, brilliant red.

*Mrs. John Clutton*, white.

*Pink Pearl*, light pink.

*Princess of Wales*, rose.

*The Queen*, blush.

Azaleas are also beautiful shrubs, but most of them, unlike Rhododendrons, lose their leaves in the winter. The reader will doubtless be quite familiar with the charming Azaleas seen in florists' windows in spring, but these belong to the Indian section, and are not hardy enough to be grown out of doors. The mollis type is the best for garden culture. The colours are not so varied and brilliant as those of *Azalea indica*, but they include a larger proportion of yellow and salmon tints. They like similar soil to Rhododendrons. *Anthony Koster* is a splendid variety.

The Berberises are among the most valuable of all shrubs, owing to their dense habit, evergreen foliage (although some are not evergreen), and pretty flowers. The most common of the genus is *aquifolium*, which is the same plant as that called by many nurserymen *Mahonia aquifolia*; but it is excelled in beauty by *Darwinii* and *stenophylla*, and these two should have the most prominent positions, *aquifolium* being reserved for shady, dry spots. The Darwin *Berberis* is the most valuable species, because it is evergreen, is of distinct and handsome growth, and has pretty orange flowers. It is of neat habit, and does not grow rapidly, consequently it is an admirable shrub for small gardens. The beautiful hybrid called *stenophylla* is perhaps the next best *Berberis*. It is a vigorous grower, and produces abundance of yellow flowers in spring. These plants will grow in most soils, but we have had some little difficulty with them in poor, shallow soils over chalk. Such ground needs heavy manuring.

Magnolias are among the most beautiful of all spring-flowering shrubs. We have mentioned *stellata* already. It is generally in bloom in spring. *Conspicua* is quite as fine, and we have a note of a splendid plant of this in a London suburb. Like *stellata* it has white flowers. *Grandiflora*, also white-flowered, is a large and very fine species. The suburbanist cannot afford to overlook the Magnolias. There is nothing in the least like them among hardy shrubs. They may be grown in the open or on walls, but they do not care for cold, exposed, wind-swept places.

Lilacs are great favourites, and every amateur likes to have one or two bushes in the garden, for the sake of the delicious fragrance of the large clusters of bloom. With time they will grow into trees, but they do not move very fast, except in particularly rich soil. They are hardy plants, and will stand a considerable amount of buffeting. Perhaps the ideal soil for them is a light, fertile loam, but they will thrive in heavier as well as lighter land if it is well drained. The common Lilac satisfies most people,



because it is so fragrant, but there are varieties with finer flowers, notably Marie Legraye and Michael Buchner, the latter of which is double.

We mentioned *Deutzia gracilis* as a suitable plant for growing in an unheated greenhouse, and hence the impression may have been gathered that it is hardy. It will certainly pass the winter out of doors, but weather that would not hurt the plant will often injure the flowers, and therefore mar the beauty of the shrub just as effectually as if frost cut the growth. The species *crenata flore pleno* is almost equally as beautiful as *gracilis*, and flowers rather later, so that it is preferable for the garden. The *Deutzias* lose their foliage in autumn like Lilacs. They are, in a word, deciduous, not evergreen.

The amateur may not have heard of the *Weigela*, but we can confidently recommend it as one of the best of the spring-blooming deciduous shrubs. It is remarkable for its profusion of bloom and its bright colours. The flowers are not large, but they are borne in such numbers that the shrubs look a mass of blossom. The *Weigela* is not in the least fastidious as to soil. It seems to do almost equally well on sandy and on clayey land; anyway, we have had equal success with it under both conditions. The varieties *Abel Carrière* and *Eva Rathké* are two of the most popular. The latter is a great favourite on account of its rich colour.

Almost every townsman knows Gorse—in fact, it will be so familiar as to have no garden interest. Who would think of growing in his garden a plant that covers miles of common? We will not suggest that the ordinary Gorse be grown, but we must certainly put in a word in favour of one or two allied plants, notably *Cytisus Andreanus*, a Broom with beautiful flowers of rich brown and yellow, borne abundantly. Everybody who sees this charming plant falls in love with it. Like the Gorse, Furze or Whin, it thrives on sandy land, which has not body enough

for more substantial shrubs. Neither Broom nor Gorse, however, is partial to chalky soil.

The Mock Orange (*Philadelphus*) is not remarkable for beauty of form or colour; indeed, its habit is rather straggly, and its flowers have no decided tint—they are of a cloudy white. But the delicious odour of some of the species (and none is sweeter than the common one, *coronarius*, although several are larger) more than compensates for any want of beauty. We think one or two Mock Oranges should be grown, but they will not come into bloom until nearly the end of spring perhaps.

One of the most beautiful of the *Spiraeas*, namely, *arguta*, is an early bloomer, and this most graceful and charming plant should find a place in all collections of good flowering shrubs. It is not very fastidious as to soil, but enjoys loam.

In respect of the question of soil, we may say that if any shrub lover is importing soil in order to improve the natural medium in his garden, on account of its paucity and want of fertility, he cannot do better than arrange that the greater part of it shall be decayed turf. When turves rot down after being stacked for a few months they make the best soil for the great majority of our finest shrubs. Practically everything will grow in it. Some leaf-mould is helpful, but it need not consist of more than a quarter. In the absence of leaf-mould, road sweepings could be added to the loam with advantage.

A shrub which thrives in sheltered places out of doors, but which could hardly be relied upon in cold places, is *Choisya ternata*. This is well known to gardeners and botanists, and is making its way steadily in the favour of amateurs also. One thing in its favour is that it is an evergreen, and the foliage is bright and ornamental. The white flowers are borne in great profusion, and are very pretty, while they are pleasantly scented.

The *Laurustinus* (*Viburnum Tinus* of the botanical books) is one of the cheapest and most common of shrubs, but amateurs



must not disdain it, for it is an evergreen, is compact in growth, has fairly ornamental foliage, will grow almost anywhere, and blooms in winter and spring. There is nothing strikingly beautiful about the flowers, but if cut with foliage attached to the stems they are by no means bad material for vases in winter. We have not met the soil yet in which the *Laurustinus* refuses to grow.

Lovers of Heaths are probably familiar with *Erica carnea*, and perhaps with *E. mediterranea* also. These are early bloomers, and have a charm of their own. They are not any-soil plants, of course. They do not care for stiff, damp land. They like a light sandy soil. Given that, they are beautiful and happy.

Veronicas have a good many admirers. They are not very early bloomers, but are often in flower before the end of the spring quarter. They are evergreens—most of them, at all events—and grow in close bushes. Very few shrubs are more easily pleased in the way of soil.

*Kalmia latifolia* is an evergreen with pretty blush flowers which is growing steadily in popularity, and, indeed, is getting its full share of the increased favour which flowering shrubs generally are receiving in these days.

A few shrubs that are not very well known to the general body of amateurs, but are highly esteemed for their grace and beauty by the cognoscenti, are *Andromeda polifolia*, a pretty, pink-flowered evergreen that thrives best with peat in the soil; *Exochorda grandiflora*, commonly called the Pearl Bush, with charming white flowers; *Halesia tetraptera*, the Snowdrop Tree, an exquisite shrub with lovely white flowers; *Amelanchier canadensis*, a deciduous shrub with white flowers; and *Rubus deliciosus*, also deciduous, and with white blossoms.

The last spring-blooming shrubs that we need mention are two species of *Viburnum*, one being *Opulus*, the Guelder Rose, and the other *plicatum*. With all respect to those who elevate the former into the position of a prime favourite among flowering

shrubs and leave the latter to the gardens of the few, we think that *plicatum* is much the more valuable species of the two. It does not form such perfect balls as the Guelder Rose, but the individual flowers are much bigger, and are borne in large bunches, which almost cover the bush. When grown in moist, peaty soil in a sheltered place, it forms a bush several feet through and high, heavily laden with flowers, and becomes an object of great beauty.

As we have said, the majority of flowering shrubs are at their best in spring, but Rhododendrons are not always over when the summer quarter commences—in fact, they may only be approaching their best at the end of June in cold districts. There are, too, several good shrubs that are distinctly summer-blooming. The Buddleias are prominent among these. They cannot be termed popular at present, but it is quite certain that they will become so in due course, now that hardy shrubs are securing so much more attention than they used to receive. *Buddleia variabilis Veitchiana* is a particularly promising variety. It is deciduous. The flowers are borne in long pyramidal clusters rather like Lilacs, but smaller.

We predict greater popularity for the Catalpa too—a real town and suburban shrub or small tree, with large and beautiful flowers. *Bignonioides* is the species to ask for when ordering. *Hydrangea hortensis* is well known as a pot plant, and the variety *paniculata grandiflora* is quite as well worth growing in the garden as *hortensis* is under glass. It thrives in sheltered places. The varieties of *Althaea frutex* (now called by the botanists *Hibiscus syriacus*) are handsome dwarf shrubs, blooming in August as a rule, and with flowers of various colours. They are deciduous. The flowers are very bright, especially in such varieties as Pompon Rouge, Violet Clair, and Celeste. There is a white called *totus albus*. We do not think that these shrubs are as well known, even to owners of large gardens, as they deserve to be, as we do not often see them except in nurseries.

We hardly know if the St. John's Worts are considered good



enough for representation. They are certainly common, cheap shrubs, but they are at least as good as Aucubas and such like, as they produce abundance of yellow flowers. Like Aucubas they are very useful for planting under trees. One of the best of the St. John's Worts is *Hypericum Moserianum*, but *Androsaemum*, the Sweet Amber, and *calycinum*, the Rose of Sharon, are also useful.

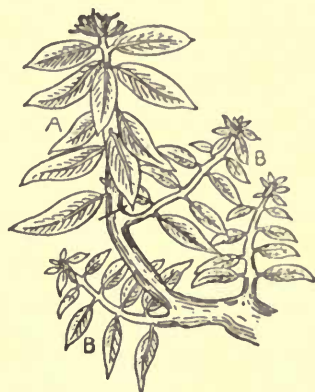
The *Spiraeas* are among the finest of summer-flowering shrubs, and every amateur should grow a few of the best. It is not all of the Meadow Sweets that can be fairly classed as shrubs, inasmuch as they lose their stems as well as their leaves in autumn, and must therefore be called herbaceous. But some are true shrubs, losing their leaves in winter, and retaining their stems. Of such are *Douglasii*, which has rose-coloured flowers, and is sometimes grown under the name of *Menziesii*; *bullata*, which has pink flowers; *canescens*, a graceful species with pink or white flowers; *Aitchisoni*, with pale yellow flowers, one of the best; *bella*, with red flowers; *discolor ariaefolia*, white, a very useful sort; *Japonica* or *callosa*, rose (this must not be confounded with the *Spiraea Japonica* of bulb dealers, the true name of which is *Astilbe Japonica*), and its several varieties, of which *Anthony Waterer*, crimson, is one of the best; and *prunifolia* and its double variety *flore pleno*; but the last two often bloom in spring.

A shrub that has achieved immense popularity is *Romneya Coulteri*, commonly called the Californian Poppy. It produces very large, white, yellow-centred flowers, and is worthy of special treatment, such as the provision of good soil, a sheltered position, and winter protection. Some growers do not protect the plant if it is growing in rich loamy soil, because they find that if the branches are killed they have only to put some litter over the roots to insure its throwing up abundance of strong shoots the following spring. It thus becomes a herbaceous plant.

A delightful shrub, far too little known, is the St. Dabeoc's Heath (*Daboëcia polifolia*), the flowers of which have a shade all

their own. There is a white variety. This plant (which is sometimes grown under the name of *Menziesii polifolia*) is an evergreen. It never grows to a large size, and is in its most useful stage when it is about eighteen inches high, for it is densely clothed with flowers. It enjoys a peaty soil, but will thrive in loam. It may be expected to be at its best in August and the early part of September.

We do not get much autumn bloom among the shrubs, but we get abundance of berries, and they are bright and cheerful. We get them on the Aucubas, for instance, on the Dogwoods (*Cornus*), on the Spindle Tree (*Euonymus*), on the *Pernettya*, a charming little shrub,



PRUNING SHRUBS

after flowering, removing bloomed wood. A shows the bloomed wood to be removed; B, B show young shoots that must not be cut off.

on the *Skimmias*, on the *Snowberry* (*Symphoricarpus*), and on the *Japanese Rose* (*rugosa*).



PRUNING SHRUBS

In spring for those that flower on current year's growths. A, A, A, shoots to be cut out; B, B, B, shoots to be retained; C, C show how to disbud to avoid undue crowding of young wood.

As regards pruning shrubs. Those that flower on the wood made the previous year should be pruned after flowering, the wood that has bloomed being cut away to make room for new. But those which flower on the young wood of the current year may be pruned in spring. See figures.

The suburbanist who has a large garden fairly well out of the town will perhaps like to have a selection of ornamental trees, not too large in growth. It is a pity to fill up valuable space with large common trees like the *Plane* and the

*Lime*, good town trees though they certainly are. The *Almonds* are useful because of their accommodating nature and early bloom.



The double scarlet Thorn, the Scotch Laburnum, *Pyrus spectabilis*, various Hollies, the Mountain Ash, with its sprays of bright berries, and *Prunus Pissardii* (for its purple leaves) are also worth considering. These trees never attain to very large dimensions; at the same time, they have beauty of flower, berry, or foliage to recommend them. They are thus well suited to owners of small gardens.

Lovers of the class of trees called Conifers (because they bear cones, which are woody bracts or compound fruits) may like to include a few, and we readily agree that they are very useful. Some are deciduous, others evergreen. A well-known example of the former class is the Spruce, and of the latter the Cypress (*Cupressus*). One of the most useful of the Conifers for a small garden is *Cupressus Lawsoniana*, a graceful, hardy, and inexpensive, if somewhat sombre tree, of which there are many varieties, differing in habit from the type. The Douglas Fir, *Wellingtonia gigantea*, the Maidenhair Tree (*Ginkgo biloba*), and the Cedar are a few popular Conifers.

## CACTI

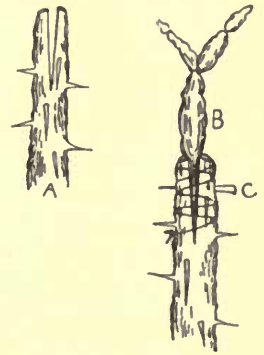
The term Cactus conveys some sort of meaning to most people who are interested in plants, just as Orchid does, but it is not every amateur gardener who could say with confidence what is or what is not a Cactus or an Orchid.

There are many Cacti, just as there are many Orchids—we mean different genera, not merely different species or varieties. A *Cereus* is nearly as distinct from an *Opuntia* as a China Aster is from a Poppy, but both *Cereuses* and *Opuntias* are Cacti, and *Asters* and *Poppies* are not. The amateur who sees a plant without ordinary leaves, but with thick and peculiarly contorted stems clothed with sharp hairs, bristles, spines, or hooks, will be fairly safe in setting it down as a Cactus.

The Cacti as native plants are certainly an adaptation to particular circumstances. They belong to dry countries like California and Mexico, and accordingly they are given by Nature the capacity to store up a good deal of water by means of their thick, fleshy stems, and to hold it by reason of the comparatively small evaporating area they possess. An ordinary plant, with a greater or smaller spread of leaves, gets rid of a great deal of moisture by evaporation; but the Cactus could not afford to do that in its native habitat, and accordingly contents itself with spines and hooks, some of which are so strong and sharp as to be capable of inflicting severe wounds on people who handle them carelessly. A curious proof of the moisture-holding power of some Cacti lies in the fact that when cuttings of *Opuntias* are taken they have to be laid on a dry shelf for a few days to insure root production. If they were put into damp soil, and kept close and shaded like the cuttings of ordinary plants, they would probably rot.

What are the claims of Cacti on the attention of amateurs? Certainly considerable. While some of them are admittedly more quaint than beautiful, all are interesting, and some are as brilliant as any flowers that we possess. Where can more glowing flowers be found than those of the *Phyllocactuses*, for example? The *Cereuses*, too, are showy, likewise the well-known *Epiphyllum*.

The fact that Cacti are great drought-resisters is a point in their favour in the case of amateurs who are away from home for the greater part of their time. The plants do not require very much water at any time. They do not call thirstily for drinks two or three times a day. It generally suffices to give water twice a week in summer, and once or twice a month in winter, when frequent watering would probably lead to decay.



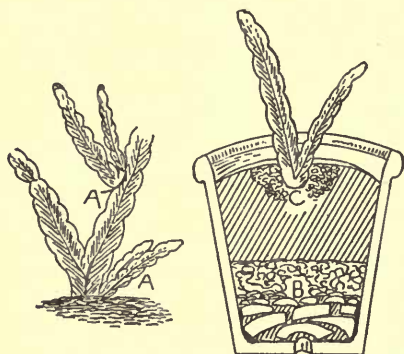
EPIPHYLLUM—GRAFTING

A, stock, *Cereus speciosissimus*; B, graft inserted and made secure by driving a thorn of the stock through as shown at C.



Hot sun does not take the freshness out of Cacti as it does out of Ferns, and consequently the question of shading does not crop up. Here is another advantage for them in the case of the absentee amateur. He can go away all day without harrowing fears of his plants being scorched up or flagging from want of water.

At the first view, a collection of Cacti which does not contain any plants in bloom is the reverse of inspiring. There is an air of torpor, of lifelessness about the plants which tends to



PHYLLOCACTUS—CUTTINGS

A, A show suitable cuttings on old plant; B, drainage; C, coarse sand and fine gravel around base of cutting in pot.

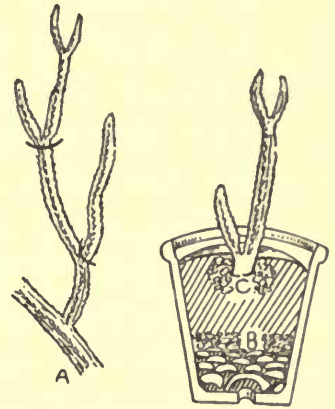
the impression that they are lacking in interest. Rough, knotted, gnarled, contorted, with no cheerful foliage to refresh the eyes of the observer, they have rather the effect of a museum—instructive, perhaps, but not enticing. Closer acquaintance teaches better things. There is interest in observing the remarkable forms which the plants assume, and the singular appendages with which they are furnished. In

*Pilocereus senilis*, for instance, we have a fluted cylinder the crown of which is densely furnished with long white hairs, in addition to white spines. This covering leads to the plant being given the popular name of Old Man Cactus. It hardly ever flowers, but that is of very small moment, in view of the interest which arises from its venerable aspect. It may anticipate a question to say that *Pilocereus senilis* has neither dark nor flaxen hair when it is young, which gets white with age. It is woolly white even in its youth. It succeeds in a greenhouse.

Other Cacti possess interest owing to their singular shape, and so it is that although the number of amateurs who specialise Cacti is small, the band is a devoted and faithful one.

Some of the Cacti have great beauty to recommend them,

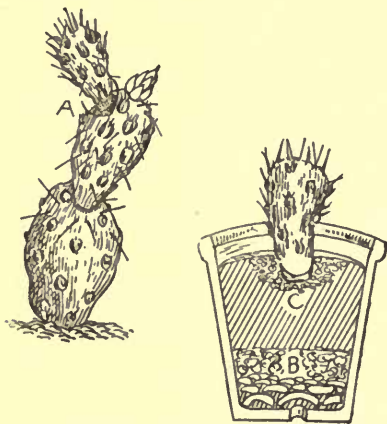
however. Take the *Cereuses* first of all. They are most brilliant flowers. Two of the best known species are *fulgidus*, with scarlet flowers, and *speciosissimus*, also with scarlet flowers. Both are very showy plants. *Flagelliformis*, which produces pink flowers in spring, is a good plant for growing in baskets. *Grandiflorus* and *nycticalus*, both of which have white flowers, bloom at night. *Macdonaldiae*, which has white flowers with red sepals, is also a night bloomer. The *Cereuses* give no trouble, as they rarely require repotting, need no water in winter, and will grow in any light, sunny, fairly warm house. They like a compost of sandy loam and broken brick, with sand and charcoal.



CEREUS—CUTTINGS

A, plant showing suitable cuttings, which must be severed as denoted by the curved dark line; B, ample drainage; C, sand and fine gravel.

There are many bright plants in the genus *Echinocactus*, and *Epiphyllums* are still more desirable, as they include the brilliant species *truncatum* and its several varieties. These are plants of greater luxuriance than many of the *Cacti*, and may have some leaf-mould added to the loam, say a quarter, instead of shattered brick. If kept dry and rested in winter in a cool house they may be restarted towards the close of winter, and will flower splendidly in a window in early summer. They are propagated by grafting.



OPUNTIA—CUTTINGS

A shows the right cutting to select; B, drainage material in pot; C, coarse sand and fine gravel around the base of the cutting.

The *Mammillarias* are an important genus. They are low and cylindrical, with many spines. *Crassispina*, *dolichocentra*, *elongata*, and *longimamma* are three of the principal species. Like most of the



Cacti, they thrive in loam, sand, and shattered brick, and need very little water in winter.

The *Opuntias* are a large genus, and include species of remarkable appearance, as well as others of great beauty. The species *leucotricha* (or *ursina*) is so shaggy as to have received the name of Grizzly Bear Cactus. They will succeed with the same treatment as other kinds.

The last genus which we have space to mention is *Phyllocactus*, and this is perhaps the most beautiful of all. Very few species are cultivated, as the florists have provided a number of beautiful hybrids and varieties, such as *Agatha*, pink; *albus superbus*, white; *Exquisite*, rose; *Jenkinsoni*, crimson; and *Niobe*, scarlet. They are easily grown, thriving in loam, leaf-mould, and sand, needing a light, warm house, moderate watering in summer, and very little in winter.

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