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Photo: A. R. Goodwin, Kidderminster.

NARCISSUS CASTILE.

(One of the Rev. G. H. Engleheart's seedlings.)

PICTORIAL PRACTICAL BULB GROWING

A CONCISE GUIDE

TO THE CULTURE OF ALL THE MOST IMPORTANT BULBOUS,
TUBEROUS, AND ALLIED PLANTS

BY

WALTER P. WRIGHT

Horticultural Superintendent under the Kent County Council

AND

HORACE J. WRIGHT

*Member of the Fruit Committee of the Royal Horticultural Society;
Honorary Secretary of the National Sweet Pea Society, etc.*

WITH MANY PRACTICAL ILLUSTRATIONS

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**Cassell's Dictionary of Practical
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The Gardener.**

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- Pictorial Practical Gardening.**
- Pictorial Practical Fruit Growing.**
- Pictorial Greenhouse Management.**
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PREFACE.



THE term "bulb" in connection with this book is given a wide interpretation.

Technically, although a Hyacinth is a bulb, a Begonia is not.

We have, however, swept away, for practical purposes, distinctions which the great flower growing public knows nothing about, and included all the favourite flowers which a broad view associates with bulbs.

Conversely, we have left out some minor plants which really are bulbs, as not deserving space in a small handbook. Such plants will be found described in "Cassell's Dictionary of Practical Gardening."

The present work is uniform with the other volumes of the Pictorial Practical series, and aims at giving all the salient points in concise form, with explanatory illustrations.

WALTER P. WRIGHT.

HORACE J. WRIGHT.

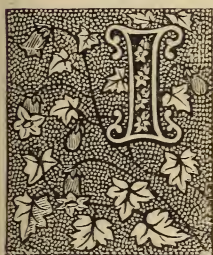
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PICTORIAL PRACTICAL BULB GROWING.

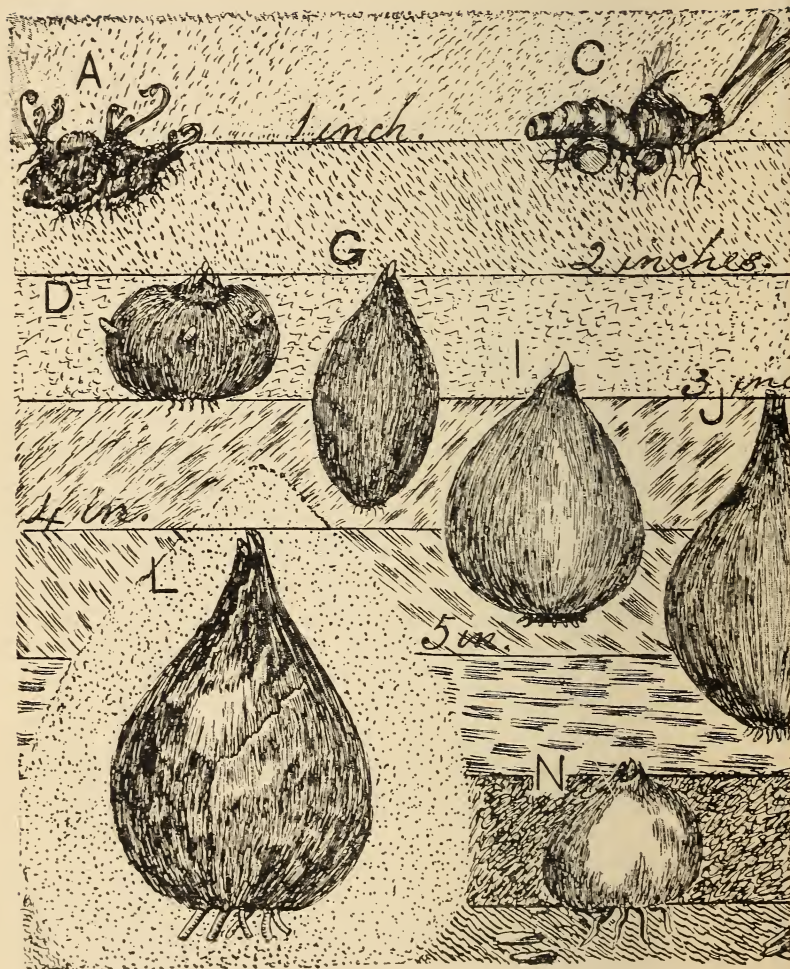
Chapter I.—Bulbs in Beds and Borders.



It is in this particular direction that we may see the most marked growth in the popularity of bulbs during the past few years, but there has been a distinct deviation from the very formal lines of a decade ago, when one kind only was permissible in each bed. Now we see that in the vast majority of cases two kinds are employed, and in many instances there are three. One is bound to appreciate the change in this direction, because the creation of a greater variety must add to the interest of the garden as well from the visitor's as the owner's point of view.

Hundreds of thousands, and probably millions, of Hyacinths, Tulips, Crocuses, Daffodils, and other bulbs are utilised in the gardens of this country every season, and it is safe to say that there is not another class of plants which, grown in such immense numbers, brings so few disappointments to its cultivators. This is accounted for by the great ease with which they may be grown, and by the endeavours made by growers to fulfil all their requirements in regard to soil, manure, and moisture. That there are failures every year it were useless to deny, but the majority of these may be said to be due rather to misfortune than to any fault on the part of the cultivator. A bed of Tulips, or of Daffodils, may and does fail, and the gardener is blamed for some supposed error in management, whereas the true cause can almost invariably be traced to some inherent fault in the bulbs over which it is absolutely certain the British grower could not possibly have control, as the trouble is traceable to the fields of Holland, where the bulbs were brought forward to supposed flowering size before they were offered to buyers at home.

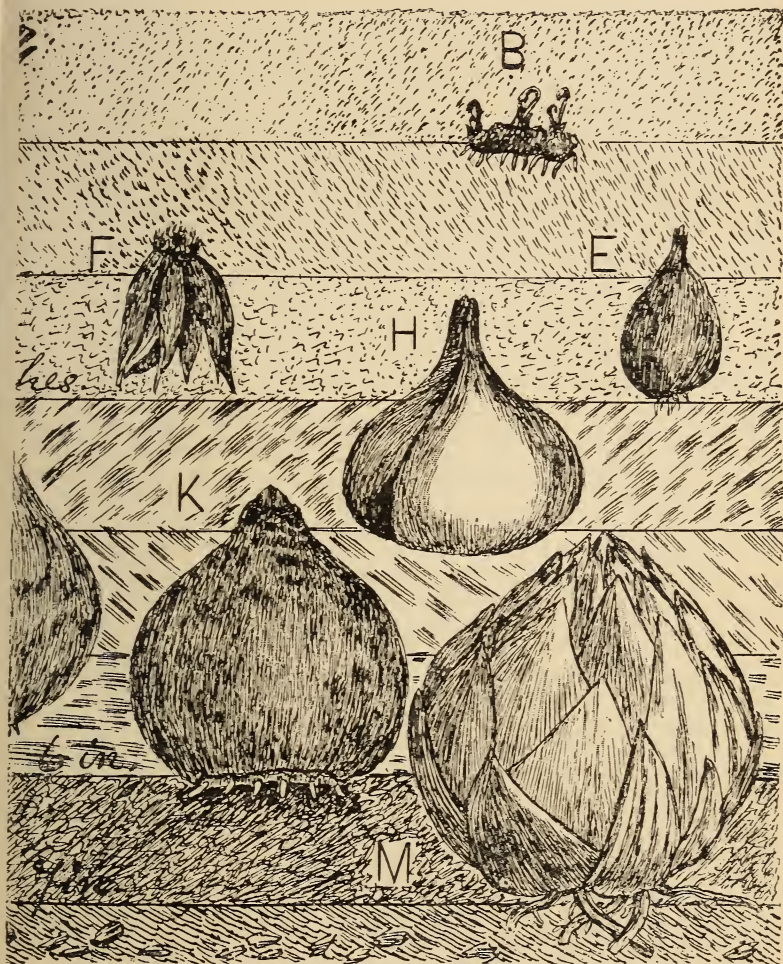
It should be thoroughly understood by everyone who has bulbs in his garden that the flower is actually formed for him by the propaga-



PICTORIAL PRACTICE.—PLAIN

FIG. 1.—THE PROPER DEPTH

- A, Anemone.
 B, Winter Aconite.
 C, German Iris.
 D, Crocus.
 E, Snowdrop.
 F, Ranunculus.
 G, English and Spanish Irises.



HINTS IN FEW WORDS,
TO PLANT BULBS.

- H, Gladiolus.
- I, Tulip.
- J, Polyanthus Narcissus.
- K, Hyacinth.
- L, Belladonna Lily
- M, Liliun.
- N, Babiana.

tors, upon whose labours must depend success. They put the spike into the bulb by their good culture, and it remains for us to bring that spike to perfection, and it is absolutely certain that if the flower is not already in the bulb it is beyond the power of the most skilful grower to bring it out. True, some men will produce finer results than others with the same material, but this is precisely similar with all kinds of plants. Knowing that the bloom is provided before it reaches us should emphasise to the purchaser the necessity for procuring only the very best, as, though such may entail a trifle more in first cost, they are infinitely the cheaper eventually, because they have the stored power to develop superb flowers, and the skill of the British gardener is more than equal to the task of making the bulb bring them forth. To go and secure bulbs simply because the price is low, and without paying the slightest regard to their quality, is to court disaster, and to lay up trouble for the grower because he has failed to accomplish an impossibility.

That errors are made it would be idle to dispute, but they are comparatively rare, and may usually be described as mistakes due to carelessness rather than to lack of knowledge of the plants' requirements. When the veriest tyro sets out to grow bulbs it is probable that he will make some mistakes in their management, just as he would do were he growing any other plants; but it does not take the man of average common sense long to realise in what direction he has strayed from the proper path, with the result that perhaps his first failure, as far as cultural matters are concerned, is also his last.

Let us consider as briefly as may be what are the chief essentials to success in the cultivation of bulbs in beds and borders in the open ground. Two things are of outstanding importance: 1, the preparation of the ground; and 2, the time of planting. In regard to the former, it is frequently said that under no circumstances must manure be added to the soil, but to this ought to be added the qualification, "in such a manner as to come into actual contact with the bulbs." One has not to grow Daffodils many years before the fact is forced upon one that they thrive better, if the soil is poor, when a dressing of natural manure or superphosphate (which is preferred by many experts) has been worked in. The main item to keep in view in applying manure is that it is with the second, and not with the first spit. If in the top soil, the bulbs will be in constant contact with it, and the result will be splitting and very few flowers.

In garden culture, however, it is very often the case that the soil contains enough food for the sustenance of the plants. Successions of flowers are arranged for, and the bulbs are usually planted in the beds which had as their summer occupants Dahlias and other plants in whose successful growth a fair amount of manure is required, for they are gross feeding, though not to such a degree as to leave the mould in a thoroughly impoverished state. The result is that almost or quite enough food remains to

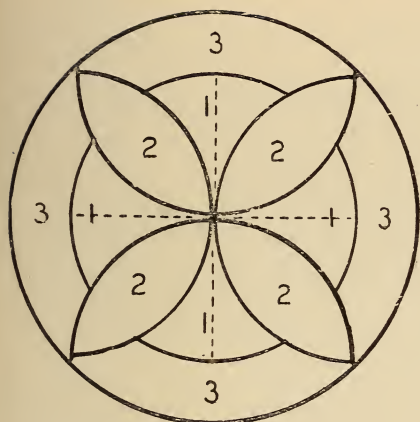
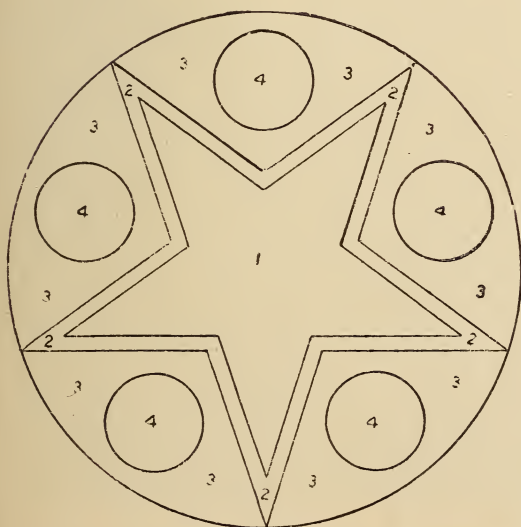


FIG. 2.—A BED OF ANEMONES.

REFERENCES.

- 1, scarlet.
- 2, white.
- 3, blue.



REFERENCES.

- 1, crimson Hyacinths.
- 2, light blue Hyacinths.
- 3, white Daisies.
- 4, double scarlet Primroses.

Alternative, for grass.

- 1, white Hyacinths.
- 2, light blue Hyacinths.
- 3, white Daisies.
- 4, scarlet Primroses.

FIG. 3.—A BED OF HYACINTHS, DAISIES, AND PRIMROSES.

bring magnificent spikes of Hyacinths to delight us in the spring. It will then suffice to double dig the ground as soon as the summer plants have been removed, as this will ensure what food there is in the soil being distributed equally throughout the bed, and thus aid in providing an even display of flowers. A dressing of superphosphate at the rate of 2 oz. per square yard may be given.

In bulb planting, consideration must be had for the kind of plant with which we are dealing, as some require different soil and positions from others. For example, *Liliums* would fail or, at best, only produce poor spikes in a situation that would be regarded as an ideal one for the sun loving *Tulip* or *Daffodil*. When it is possible, the *Liliums* ought to be given a spot where the base of the plants will be beneath the shade of other things, such, for instance, as amidst the *Rhododendrons*, as their roots will then always be in the cool, beyond the burning influence of the rays of the sun. Another reason why they appreciate this position is because many of them are peat lovers, similarly to the plants amidst which they are growing, though, like them again, they may be successfully cultivated in well-drained fibrous loam. It is in recognising such apparently small points as this that the secret of the striking success of many of our best bulb and plant growers may be said to lie.

Planting in borders is, in several cases, similar to planting in beds, but it may, and often does, differ materially therefrom. When the space to be occupied has been utilised as a ribbon border with plants of the same types as are grown in beds, then the preparations will be precisely the same, as in both cases the soil will have had manure worked into it in the previous spring. When, however, the bulbs are to be planted in clumps between large stools of herbaceous and other plants, it may be necessary to adopt different tactics in order to ensure the greatest success. Here, again, it may be said that the soil is usually plenty rich enough for bulbs, but should this not be the case it will not be a matter of any difficulty to excavate some top soil, and with the second spit incorporate as much thoroughly decomposed manure as is deemed desirable. Or if this does not commend itself to the cultivator, either from lack of manure or other cause, remove a good amount of the ordinary soil and occupy its place with some old potting mould, this always being suitable for bulbs. Of all the different kinds that are commonly grown in our gardens, *Daffodils* like the richest soil. *Anemones* give beautiful effects (see p. 13) with a little yard manure.

During comparatively recent years an endeavour has been made to persuade the inexperienced that bulbs which are planted as late as, or even later than, Christmas will flower as satisfactorily as those that are put in position at the end of October or in November. This is not correct, and in the case of *Daffodils* there is a distinct loss of vigour when the planting is postponed later than October, and a marked gain in the quality of the blooms if the bulbs can be put into their places in August.



FIG. 3A.—A WALK BORDERED BY JAPANESE ANEMONES.

Chapter II.—Bulbs in Pots.

NOTWITHSTANDING the unquestioned utility of bulbs for the adornment of the flower garden in the spring, it is largely to their value for pot culture that they owe their popularity at the present time. In this phase of bulb growing they are brought within the reach of everyone who cares to try his hand, for a greenhouse is not essential, and they may be grandly grown by anyone with a dark cupboard or a dark cellar. When they have been brought to perfection, or as near thereto as the means at command will allow, they are amongst the most useful subjects for room decoration, as, despite the somewhat stiff appearance of Hyacinths, they last well, smell sweetly, and when associated with other things produce a beautiful effect in the early months of the year, when flowers are none too plentiful, and those that can be had are usually rather expensive of production.

Preparation of the Compost.—Though bulbs will grow and flower in almost any soil through which water can pass with reasonable freedom, it is only cultivators who go to some little trouble in this direction that secure the best results. There is no need to procure a rich or an elaborate mixture—indeed, one containing fresh manure is more likely than not to lead to trouble by causing the growths to split up and produce nothing better than a lot of small, useless stalks that no amount of flattery can call spikes. The employment of much chemical manure should also be regarded as taboo, for the inclusion of too much will inevitably spell failure. If it is used at all, let it be in very small quantities; but a great many successful growers refrain from it altogether, and do what feeding may be desirable when the plant is throwing up its spike. The compost that has been found to answer best over a protracted series of experiments is the very simple one of 3 parts of sound loam, 1 part of thoroughly decomposed leaf mould, an 8-inch potful of soot to every bushel of soil, and sufficient coarse sand to ensure the whole allowing water to pass freely through it.

It is very desirable, though not absolutely essential to success, that the compost be mixed some time prior to its use, as in this case the several ingredients appear to become more thoroughly incorporated than when the utilisation follows immediately upon the mixing. The actual state of the compost at the time of potting has a material effect upon the ultimate results. If it be very dry, and the precaution is not taken of carefully moistening it before use, it is a difficult matter to bring it into a proper state afterwards;

while if it be sodden, the trouble, though in another direction, is equally great, as the bulbs decline to send their roots into a soil that is sour through excessive wet. Have it in what gardeners call an even condition of moisture, as not only will this be better for the bulbs, but the potting will prove much easier to do. If dry, it must be watered; and if wet, let it be dried a little before the work is started.

Suitable Pots.—Hand in hand with the preparation of the soil runs the selecting of the pots. New ones are sometimes used for the purpose, but neither for bulbs nor any other plants are they good unless they have previously been thoroughly soaked, as when perfectly new they quickly absorb water from the soil, and leave it dry when the cultivator expects that it is pleasantly moist. When old pots are employed they should be well washed prior to use, not because repotting is likely to be done, but to remove lurking insects, as well as to create as good an appearance as possible. The provision for drainage is an important item in the preparatory operations, and it must not be scanty on the one hand or over abundant on the other. The ordinary system of placing one large piece of crock hollow side downwards, then other smaller pieces round it, with still smaller above these, and covering the whole by some of the rougher portions of the compost or a layer of coarse moss, cannot be beaten if it is properly carried out. The object of the upper surfacing is to prevent the fine particles of soil washing down into the drainage, and thus choking it to such a degree as to arrest the water in its downward progress and leave the roots in soured soil, in which they are apt to decay in a manner that bodes ill for the results of our bulb display in the spring.

Sizes of Pots.—Repeated experiments have forced us to the conclusion that in the majority of cases the pots employed are quite one size, and frequently two sizes, too large. For all Hyacinths, except those producing very big bulbs, like *La Franchise*, *Grand Maître*, and *Grandeur à Merveille*, what is known as a 54 pot, that is to say a pot 4 inches in diameter at the top, is quite large enough for all general purposes, and with judicious feeding spikes sufficiently fine for exhibition can be secured. The use of 6-inch pots allows the roots too much room at the outset, and of course the pots occupy a great deal more space, which is a good enough reason for their avoidance by amateurs, even if there were no other. This size is admirable when three bulbs of Hyacinths are put in one pot, or three Narcissi, five Tulips, or five Roman Hyacinths. (For methods of potting Narcissi in threes, see Fig. 4, p. 19. The instructions apply to other Narcissi and Tulips.) The objection held by many people to the use of small pots is that the limited amount of soil cannot possibly provide sufficient food for the plants. This is, however, an easily surmounted difficulty when the highest degree of activity is attained to, for then feeding with suitable foods may be commenced in real earnest, and the benefit to the plants will be infinitely greater than when rich food was provided at the outset.

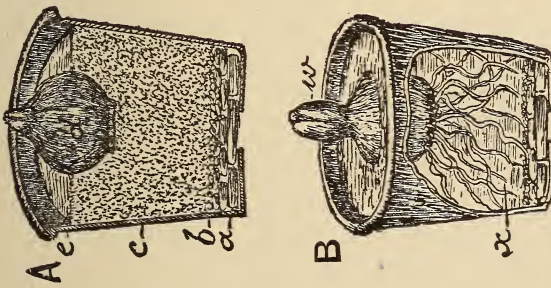
Potting.—Simple as this operation undoubtedly is to those of

experience, it frequently proves a stumbling block to the tyro, who is either too light or too heavy handed in carrying out the work. The correct degree of firmness to which the soil should be carried is not easy to explain, indeed it can only be thoroughly realised by constant practice; but the observant grower soon grasps what is wrong with his plants, and a little thought will usually lead him to the true reason of the trouble. The first thing is to have a goodly number of pots of one or more sizes, according to requirements, prepared for use, all crocks being carefully placed in position; then will commence the actual operation. Sufficient soil should be placed loosely in the pot to reach within about $1\frac{1}{2}$ inches of the edge of the rim, then lift and rap sharply on the potting bench, and the soil will generally be found to go down far enough to allow of the bulb being placed on the surface or in a very slight depression, and leave its upper extremity level with the soil when the work is completed. Should this not prove to be the case, less mould must be put in to start with, and when once the proper amount has been ascertained the progress will be rapid and the work well done. (For potting Hyacinths, see Fig. 3B, p. 17.)

Some successful cultivators pursue a different system with equally satisfactory results. They put in a little soil at a time, making it firm as they proceed, until the correct amount is in the pot; but in this there is an ever present liability of getting the mass too solid, which will never occur if the previously recommended method is adopted. It is necessary that the rapping upon the bench be very sharp, or the soil will not settle down properly.

If the soil is in a properly moist state at the time of potting, it will not be necessary to apply any water either then or for a considerable time afterwards; but there must be no doubt in the matter, and if dryness is suspected let the soil be well moistened through to the drainage before the pots are plunged. Unless this is done, the soil will become like dust in the plunging material, and the roots of the bulbs will not work in it in anything like a satisfactory manner. This involves a loss of valuable time, and the flowering season is much retarded and often so prejudiced that handsome spikes are never developed. Assuming that everything possible has been done to ensure a good start, the next phase of bulb culture in pots may be considered.

Plunging.—At the first glance novices are sometimes unable to see the utility of this operation, but its desirability can never be called into question by those who have seen the results of its neglect. So important is it that it may justifiably be termed one of the chief essentials to success. To make its importance more readily appreciated by the uninitiated, the objects of plunging may be briefly set forth. There are three things for which we aim, and they are of equal importance: 1, the encouragement of root action; 2, the discouragement of top growth until such time as there are plenty of roots to supply it with food; and 3, the reduction of evaporation to a minimum, so that it will not be necessary to apply water until the pots are ready to be removed from the plunging



REFERENCES.

A: *a*, crocks; *b*, moss and rough soil; *c*, fine soil; *d*, bulb; *e*, space for water.
 B, when to remove from the plunging bed: *x*, roots; *w*, top as large as *a* Filbert.

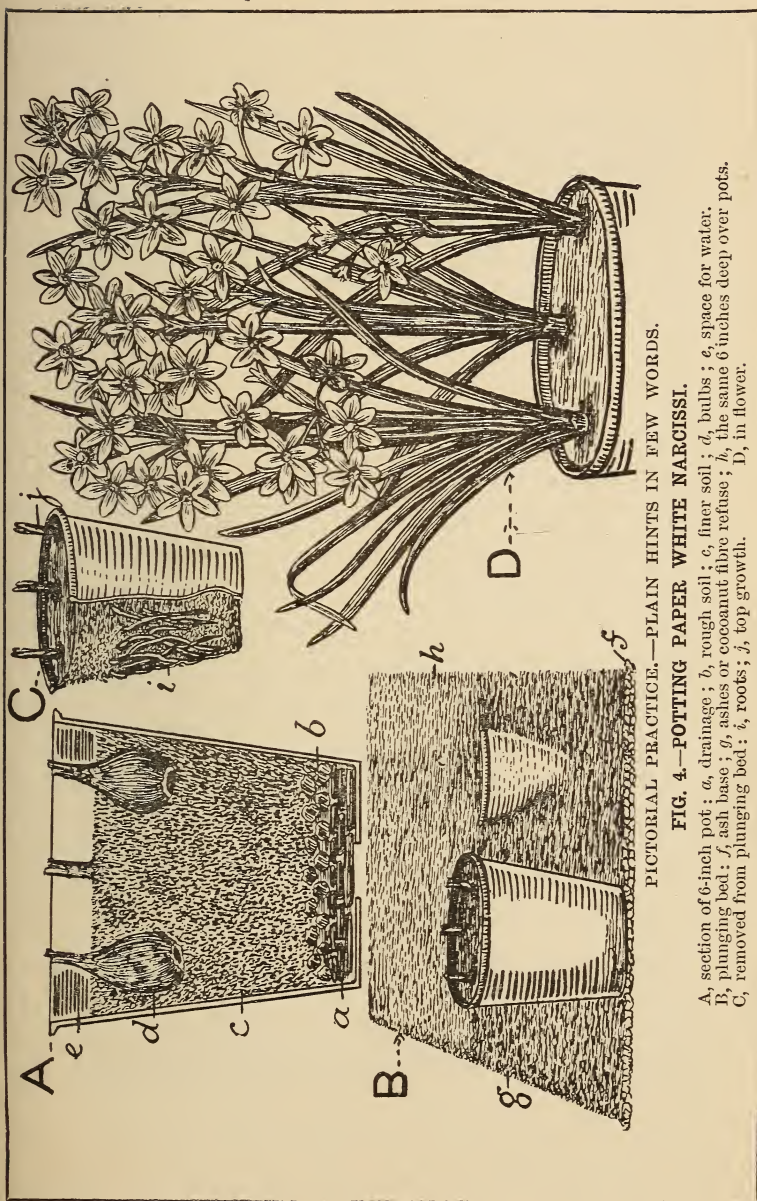
PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.
 FIG. 3B.—HOW TO POT HYACINTHS.

material to the light for the development of the flower. The absence of light prevents the excitement that goes to the swelling of the spike, and the bulb has nothing else and nothing better to do than to emit abundance of sound roots with which to imbibe food for the benefit of the plant at a later date. The disadvantage of having to give water in the very early stages lies in the danger of the soil becoming sour, simply because there are no roots actively working in it. Of course, it is better to apply water than to allow the compost to remain perfectly dry for any length of time, but it is desirable to avoid it, if possible, by the means indicated.

Many growers of bulbs have to neglect the plunging entirely, simply because they have no available place. Dwellers in towns suffer most in this direction, but they need not despair of being able to produce fine Hyacinths, Tulips, Narcissi, or other bulbous flowers, provided they have a dark cellar or cupboard whose temperature is not too warm and dry to accommodate the pots during the stage at which they would be plunged under more favourable conditions. When this means of starting the bulbs has to be resorted to, the utmost care must be taken in the watering that will have to be done, giving only sufficient to keep the soil just moist from the surface down to the drainage. The pots ought to be examined as frequently as possible, so as to guard against absolute dryness; as when this state is reached it is most difficult to get the soil moist again without having recourse to plunging in a bucket, which is undesirable.

The length of time during which it is essential that the pots shall be plunged varies considerably, as it is affected by the time of potting, by the temperature of the plunging bed, and the earliness of the sort. The usual period is six weeks, but it is preferable to lay down no hard and fast rule, as one can easily decide the correct moment for removal by frequent examinations made after the pots have been buried for between three and four weeks, by which time distinct advance will be evidenced. In the dark the initial movement in the bulbs will be towards the production of roots, and when upon examination it is found that the top has grown to the size of a fine Filbert Nut, it is almost invariably safe to assume that roots are sufficiently numerous to warrant the removal of the pots from the plunging material into the light, when the energies of the plant will be about equally divided between the growth above and below the surface. (See Fig. 3B, p. 17.)

Material for Plunging.—The best material for this purpose is undoubtedly cocoanut fibre refuse, as it is light, warm, impervious to light, and will turn a fair shower of rain. Failing this, ashes may be employed, but unfortunately some coals produce ashes containing a property poisonous to the tender top growth, and disaster follows; for this reason they should be avoided if anything else can be secured at moderate cost. Dry leaf mould is successfully used by some cultivators, but with this again there is an element of danger, as it may contain insect or other pests which will find in the sweet, tender



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 4.—POTTING PAPER WHITE NARCISSI.

A, section of 6-inch pot ; *a*, drainage ; *b*, rough soil ; *c*, finer soil ; *d*, bulbs ; *e*, space for water.
 B, plunging bed ; *f*, ash base ; *g*, ashes or coconut fibre refuse ; *h*, the same 6 inches deep over pots.
 C, removed from plunging bed ; *i*, roots ; *j*, top growth.
 D, in flower.

tops food to their liking, and this, of course, will mean more or less damage to the plants. In respect of the best place for the plunging bed, there is often not much choice, but beside a wall of any kind is as good as any, as it is there usually comparatively easy to afford protection whenever it may be deemed necessary. When an open position has to be utilised, it is wise to have permanent provision made for throwing off the heaviest rains; old mats, pieces of tarpaulin, or unused lights can be requisitioned, and will render invaluable service.

Indoor plunging beds are frequently made up, and with proper care answer well, but there is always greater liability to drip when beneath stages, as well as the probability of the warmth encouraging earlier growth than is desirable for the good of the plants. However, they must be used at times, and in these cases they should be as carefully covered as those out of doors. Broadly speaking, all bulbs should be plunged, but in Freesias we have a notable exception, these often causing much trouble when treated in the orthodox manner.

Removal from the Dark.—This is really one of the crucial periods in the cultural life of the plant, for it is easy at this stage to spoil our chances of success by a small error. It is not likely that anyone would so treat the plants as to preclude the development of any spike, but they might prejudice them sufficiently to represent the difference between an exhibition specimen and one that was drawn and poor in colour both in flower and leaf. When the time is reached for removal, the grower should bear in mind the fact that until now the progress has been wholly in darkness, and this will impress upon him the importance of guarding against a sudden shock, such as is entailed by bringing the pots directly from total darkness into brilliant light. Immediately on removal the pots should be tested to ascertain if water is required, giving or withholding it according to the result of a careful test; then they should be stood on the stage in a greenhouse, or upon a table if grown indoors, and covered with two thicknesses of brown paper or several sheets of newspaper. Allow this to remain for two or three days, and then reduce it slightly so as to admit an appreciable amount of light; in a few more days take away more paper, until it can be seen that the top growth is assuming a deep green colour, when all protection can be dispensed with, and the plants have the fullest benefit that unobstructed light can confer upon them.

Feeding.—Whether special food is employed in the mixing of the compost or not, it is desirable, if the finest spikes are wanted, to feed when the spike is half developed with some suitable manure. Application may be made either in dry form or as a liquid, and, all things considered, the latter is preferable. The utmost care must be taken not to overdo the applications, either in frequency or in strength, as such an error leads to harm rather than good. One of the most valuable aids to advancement will be found in soot, as, apart from encouraging growth, it serves an excellent purpose in enriching the colours of both the leaves and the flowers, and thus

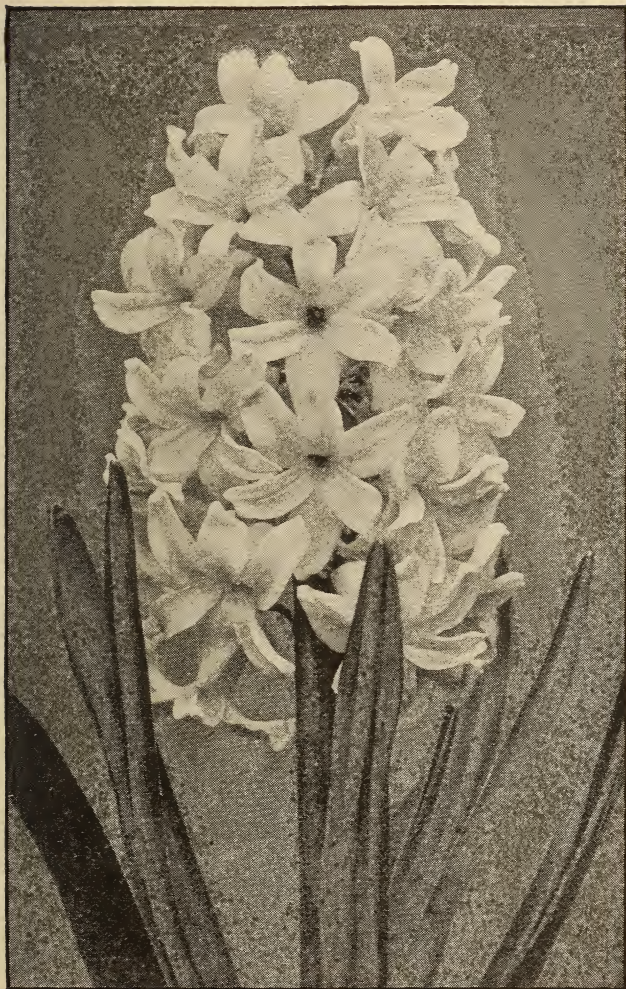


FIG. 5.—HYACINTH MORENO, A GOOD BLUSH FOR POTS.

materially enhancing the beauty of the plants. Nitrate of soda is frequently resorted to, but unless it is given with the greatest care it is very dangerous, as it is liable to damage the tender roots crowded in a small space. If it is used at all, it should not be stronger than $\frac{1}{4}$ oz. to 1 gallon of water, but $\frac{1}{2}$ oz. of superphosphate per gallon is better. Any food made from natural manures may be employed, provided it is given in weak doses, and that each application alternates with one of pure water. Above all things, do not over feed, as this is infinitely worse than not feeding at all.

Forcing Bulbs.—To everyone who has a greenhouse, bulbous plants are of such enormous value in the spring months that it would be a matter for surprise rather than otherwise if strenuous endeavours were not made to bring them into flower before their normal time. Fortunately for cultivators, bulbs are very tractable in this respect, and, provided we use reasonable precautions, flowers will be available over several months, and this at a period when they will render splendid service. By pushing on the one hand, and retarding on the other, we can have a supply of bulbous plants for the conservatory or the greenhouse from mid-November until the following May, or a period of six months. Such a protracted time would, of course, necessitate the utilisation of large numbers of bulbs, and the exercise of a considerable amount of skill in their management, but, given these things, with proper facilities for growing, the difficulties will be easily surmounted.

As the details of soil preparation and potting are precisely the same as for ordinary culture, it were a waste of valuable space to deal with them now, as would-be forcers have merely to imbibe the instructions already given to equip them on points of detail.

The thing that the grower must realise first of all is that all varieties of Hyacinths, Tulips, Narcissj, or what not are not equally amenable to forcing treatment, and in respect of the last named particularly neglect of attention to this matter will lead to the greatest disappointment. The bulbs that are forced in the greatest numbers, thereby proving themselves to be the best fitted for the purpose, are White Roman Hyacinths, Van Thol Tulips, Double Roman, Paper White, and a few other Narcissj (a simple rule of guidance in choosing the latter will be given in due course), some Liliams, and several others of much assistance, but not of sufficient importance to warrant special mention at this juncture. All the so-called Dutch Hyacinths and Tulips may be persuaded to throw up their flowers a little quicker by handling them carefully, but they cannot be regarded as suitable for forcing, as any attempt at rushing things will result in disaster.

No matter whether one is dealing with Roman Hyacinths or anything else, a good foundation of roots must be secured before any attempt is made to force, and until this is done it is well for the grower to proceed along the lines suggested in the preceding paragraphs. Encourage plenty of healthy roots and a nice green



FIG. 6.—A GOOD POT OF TULIPS.

top, and anything reasonable in the way of artificial heat will be promptly and satisfactorily responded to. To place the newly potted Romans directly into heat does not necessarily imply failure, but simply that one cannot be so sure of success. As the plants advance for flowering, they must have regular supplies of water, with liquid manure according to their requirements, making certain that they have ample food at all times, or the spikes, which compared with those of the Dutch Hyacinths are never very large, will be almost too small to be of material value, unless the bulbs were especially fine.

Where abundance of Hyacinths and Narcissi are wanted for cutting purposes, pots should not be employed, as far more produce can be secured from the same amount of space and attention by putting bulbs into shallow boxes, such, for example, as those which are commonly used for the reception of cuttings when large numbers have to be struck. It is not absolutely necessary to make any provision for drainage, though it is advantageous to have four or five holes burnt in the bottom of the box, over which some rough drainage can be placed, so as to make everything as favourable for the bulbs as possible. These may be put quite closely together in the boxes, but ought not to touch each other if it can be avoided. They can be placed in the dark or not, according to convenience, as their life is so short that the fact of the roots being somewhat limited in quantity does not seriously affect the quality of the spikes. The motto with Romans in boxes is a short life and a merry one. Tulips and Narcissi may be treated in a precisely similar manner, and will prove equally as satisfactory. The former, however, whether in pots or boxes, will require considerably more water than the other, if the very finest results are sought for.

Time of Potting.—The period at which the bulbs are potted varies with the time that they are wanted to flower, and it is always desirable to give as much grace as possible, as it is far easier to retard the plants a little than it is to hurry them unduly at the last moment. From August-potted bulbs of Romans there should be no difficulty in having good flowers in November, and successional pottings or boxings, as the case may be, will provide plenty of spikes until well into the new year. Van Thol Tulips will advance at about the same rate, but Narcissi must be allowed a little longer, as when pushed too hard they are prone to go blind after the buds are formed. Dutch Hyacinths are procurable in September, and may be potted at once, or kept to a more convenient time, up to December, when all should be got in without further delay. The ideal time is probably the middle of October, but each grower must exercise his own judgment, and pot so as to have the plants in bloom when they are likely to be of the greatest use to him. Some people have taken to deferring the potting until well on in January, but this is really too late, though it is not actually imperative, as was considered years ago. that every bulb should be potted

before it was showing the green tip of the growth in the apex. None except the finest bulbs, procured from sources of the highest repute, must be employed for potting, more particularly when forcing is to be done.

Bulbs After Flowering.—The manner in which bulbs that have produced splendid flowers are treated is little short of disgraceful, for they are cast aside as though they never were and never could be of any value. It is certainly false economy to retain bulbs for pot culture from year to year, as new ones that will produce far better flowers can be purchased very cheaply, but, at the same time, those which have done good service may be made to do something more, if they are correctly handled after flowering. For planting in borders of mixed plants they are invaluable, while for woodlands they are practically as useful as newly bought stock. They never develop such handsome trusses after the first season of blooming, but the spikes they do produce are valuable for cutting, which is more than can be said for the early ones, as these are too stiff to have any value for this purpose. Tulips and Narcissi are even more serviceable than Hyacinths for planting out.

The proper way to treat them may be described as briefly as possible, for the benefit of those who have been in the habit of throwing away useful material. As soon as the spike has passed its best stage, let it be removed, as its retention means that it is taking a certain amount of sustenance for which it will give no return. It is to the leaves that we must look to secure some recompense for our labours now, as they contain much stored material that will be of use to us if we can get it transferred to the bulb in the soil. This is induced by keeping the leaves green for a reasonable period, this being ensured by regular, though lessened, supplies of water. If these are given, the foliage gradually dies down, sending its store of nutriment into the bulbs in the process; first the upper extremities of the leaf turn yellow, this slowly spreading to the base, when the work of the leaves may be said to be concluded, and they should be removed. No better way of managing the plants can be suggested than this, and it has the merit of being extremely simple.

There is one other way in which the bulbs may be treated after they have done flowering, and it has, what will be a distinct recommendation in the eyes of many people, the merit of being even easier than the one already suggested. This is to plant them out directly they have finished blooming, removing the spike, but not the leaves, in the manner directed in the preceding paragraphs. For this purpose a piece of ground in good heart should be chosen, and for preference it should be shaded from the hottest sun, as strong sunshine will rush the ripening of the leaves along too fast for them to confer the fullest benefit upon the bulbs. If the soil be naturally very dry, it will be necessary to give one or two thorough soakings of clear water, it not being desirable to use any liquid manure at this stage. In the event of the only available space being

excessively poor, it will be decidedly advantagous to dig in some thoroughly rotted manure, but it must be put in the second spit.

Staking the Plants.—When the culture has been thoroughly good at all stages, it will be found imperative to give the grand spikes of Hyacinths, the glowing flowers of Tulips, or the big Narcissi some assistance, or they will certainly collapse by their own great weight. As this completely spoils their appearance, it must be prevented by timely staking. It is unfortunate with



FIG. 7.—A WIRE SUPPORT FOR HYACINTHS

A Wire Support for Hyacinths.—Get about 18 inches of wire, or as much as is required that will work easily, double it up so that both sides are equal, put a stick through the top to form a loop, then twist it down to about 4 inches from the ends, bending these out wide enough to go over the bulb. The loop at the top is to tie the blooms to. The first sketch shows the support twisted, the other plain.

Hyacinths that the bulbs are so large as to render it impossible to get the stake quite close to the spike, and an ungainly stick by no means adds to the good effect. To obviate any trouble in this respect, the best way is to have very small sticks sharply pointed, and force the end into the bulb itself, where it will stand firmly, and, lying closely to the spike, will not be unsightly. The objection may be raised that such a method of procedure is sure to damage the bulb. And so it will in a minute degree, but it will certainly not affect the present year's spike. For planting in the border—and this is the ultimate home of most of the pot-grown bulbs—the small hole is little if any detriment, as the bulbs appear to flower just as well as when they have not been thus barbarously treated.

Chapter III.—Bulbs in Glasses.

ONE of the most interesting phases of bulb culture is that of growing a certain number of Hyacinths, Tulips, Narcissi, and a few Crocuses in water, glasses suitable for the purpose being readily procurable. It is distinctly an aspect of gardening that appeals to the ladies, as it is perfectly clean, and the results are usually very gratifying to the cultivator. Of all systems it is the one which demands the finest bulbs, and by this is not meant the largest, as is sometimes thought, but those that are perfectly sound in every respect, or they will fail to bring their spikes to perfection. Even under the most favourable conditions, it is seldom that the flowers are as good as those produced by bulbs in soil, as these can get so much more nourishment; but they are nevertheless most pleasing, and, besides, can be grown by those to whom pot culture is an impossibility.

Selections of bulbs for all purposes are given, but for water culture it is always wise to leave the choice of varieties to the vendor, as he can then pick them from those having bulbs best suited to the purpose in view, which is, of course, made known to him at the time of ordering. Glasses of several elegant patterns are available, and the choice rests with the purchaser, but it is certain that the bulbs thrive as well in what is styled the "old" shape as in any. These are upright, and are admirably suited for placing upon a window ledge when the spikes are well advanced. The glasses with broader bases are more useful for standing upon tables or mantelpieces, where there is an ever present liability of knocking them over. Whatever shape is decided upon, either those that are of dark colours or opaque should be given the preference over clear glass, as the roots will keep healthy much longer than when they are exposed to the full light through clean glass.

Soft water is far better for bulbs in glasses than that obtained from the pipes, though this has generally to be used, for the simple reason that the former is unprocurable in many places. In either case, one or two lumps of charcoal ought to be placed in each receptacle, as this will be of material assistance in keeping the water sweet, though it will not, as some people suppose, provide the plants with any food. The food is found in the water, and is, of course, in greater abundance in soft than in hard water. The base of the bulb need not come in actual contact with the water, but must be so close thereto as to only allow a thin piece of note-paper to be placed between. There will be gradual loss, of course, and

from time to time this must be made good by the addition of fresh supplies, and if necessary by the substitution for the original liquid of sweet, fresh water ; it is not desirable to have recourse to the latter expedient unless the water becomes objectionable, as the roots may be damaged in the process to a serious extent. If it be imperative, have fresh water and charcoal immediately at hand, withdraw the roots, turn out the stagnant water, thoroughly rinse the receptacle, and put in the fresh supplies as quickly and as carefully as possible, never during the operation allowing draughts to strike upon the roots. In reading this sounds quite a long and laborious task, but in reality it will prove to be the work of a very few moments.

When the bulbs are in position the glasses must be put in a dark cupboard, or other convenient place, in the same way and for precisely the same purpose as bulbs in pots. Here they may remain until such time as they have made ample root growth, no cognisance whatever being taken of the leaf growth in this case.

The support that is essential in pot culture becomes doubly so with plants in glasses, as they have absolutely no anchorage at all. Home-made contrivances may be employed if desired, but they are not usually as satisfactory as the properly formed wire supports that are sold by bulb merchants expressly for the purpose. These are of very moderate price, and with proper care will last an indefinite period ; they are neat in appearance, very strong, and can be adjusted in a second or two. When bulbs in glasses have done flowering it is best to throw them away, as they are so much exhausted by bringing large spikes to perfection under such unnatural conditions that they are not worth a moment's retention. These cultural remarks may be accepted as applying to all kinds of bulbs that are grown in water, and are not intended to refer to Hyacinths alone, though these are named as examples, they being far away the most popular, and, it may be added, the most satisfactory for the purpose.





FIG. 8.—A ROMAN HYACINTH IN A BOVRIL BOTTLE.

Chapter IV.—Bulbs in Vases and Bowls.

THIS very delightful manner of bulb growing has come into special prominence during comparatively recent years, in fact since the now well-known mixture of fibre and shell was brought before the public for this express purpose. Long prior to this, of course, bulbs were grown in bowls of gravel and water, the Chinese Joss Lily (a form of *Narcissus Tazetta*) being highly recommended. There were, however, so many failures, or at best only partial successes, that growers were prompt to turn to other and better methods the instant these were placed before them. With this fibre and shell compound practically all bulbs will flourish, though some naturally do better than others, Tulips and the *Incomparabilis* forms of *Narcissi* being particularly desirable owing to their graceful habit of growth.

One can imagine no more delightful form of bulb growing than this, especially for ladies, as it ensures excellent flowers in elegant receptacles, that are eminently suitable for standing upon the dining and drawing room tables, and thus allowing the lady to show her friends how successful she has been in the culture of bulbs. Another thing in connection with it that will appeal to the fair sex is its absolute cleanliness, it not being necessary to more than very slightly soil the fingers in carrying out the whole of the work therewith. Any small jars may be requisitioned for the purpose, those in which cream is sold being as good as any, though they do not look so well as those that are made expressly for bulbs, as these have designs upon them which add to the charming effect that is produced. Anyone feeling reluctant to spend money before knowing exactly what they can do in the direction indicated, should try their 'prentice hands with some cream jugs, and if they exercise care they will certainly be more than satisfied with the results they will achieve.

The great advantage of using jugs, or jars, or bowls with the fibre is that no drainage is required, and no provision is made for it, so that there can be no objection to their use on the score that they will make tablecloths dirty, even if they do not spoil them, as too frequently occurs when ordinary pots are used. If there is a secret in the successful production of bulbs in these undrained receptacles, it lies, beyond a doubt, in having the material in the proper state of moisture to start with, and in keeping it thus throughout the life history of the plant. This, it may at once be said, is not an easy thing to do, and, unfortunately, no directions that will assist the cultivator can be given, as the conditions of no two houses are precisely alike; it therefore resolves itself wholly into

a matter of individual judgment. The greatest danger lies in the bulbs being forgotten for some days, and then having a lot of water applied, under the erroneous impression that it is thus possible to make up for lost time. The rule should be to look carefully over the plants each day, giving water the instant it is necessary, but never before.

A pretty Hyacinth bowl, B, can be made by cutting holes the size of the bulbs in a round piece of wood, as shown in the illustration at A. This should be placed about 1 inch deep in the bowl to rest the bulbs on.

When the "potting" is done, have the compost pleasantly moist, that is to say, so that it will adhere slightly to the fingers when it is handled. Make it moderately firm, but do not attempt to leave it as hard as a road, and have the nose of the bulb just protruding through the surface when the operation is completed. Beyond this,

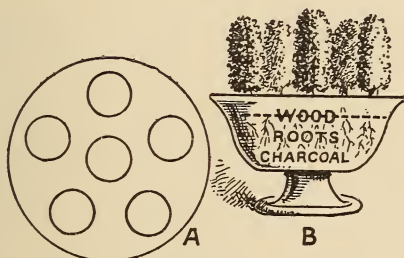


FIG. 9.—A BOWL OF HYACINTHS.

treat the bulbs exactly as for pots, and in due course fine flowers will come as a reward for the labour expended. In addition to the *Incomparabilis* varieties, the *Polyanthus Narcissi* grow splendidly, as also do some of the large trumpets. After flowering, the bulbs should be thrown away, and a start made in the succeeding year with a fresh stock.

Chapter V.—Bulbs in Window Boxes.

THERE are few people who cannot have a window box if they want one. Not that the lot of the owner of window boxes is invariably a happy one, especially if he be so unfortunate as to dwell in a town where everyone is not as honest as the day, for the plants and boxes are apt to develop wings and hie them away to other and more desolate spheres. It is poor consolation indeed to a man who has suffered thus to be told that he is certainly brightening somebody's home, though there may be some philosophers about who regard it in this way.

What window gardeners would do for their spring display without the indispensable Dutch bulb one shudders to think, for it will be quite safe to assert that out of every ten boxes filled to look beautiful in the early months of the year, eight, and perhaps nine, either owe their charms to bulbs entirely or are largely filled with them. The reasons for this popularity are not far to seek. The plants are extremely easy to grow, they do not demand a great amount of attention after once being put into their places until the spring, they can be procured for a very small outlay of cash, and they produce a singularly charming effect, notwithstanding what the hypercritical say about their stiffness. One occasionally hears it asserted that the use of Dutch bulbs does not permit of any change being made in the style of dressing from one year to another, but this is an error, as many have proved over and over again. It really resolves itself into a question of whether the cultivator possesses a spark of originality or not, for if he does he will soon ring some decided changes, even though the scope be limited.

For window box culture bulbous plants are unique in utility, inasmuch as while we can, if necessary, find substitutes for all other plants, such a course is not possible with the bulbs which stand alone for spring effects. To ensure the very best results it is imperative that there be two boxes for each window, or during the winter months, when the bulbs are making root progress alone, the sills must be quite bare—an occurrence that may be easily and satisfactorily overcome by adopting the duplicate box system, as one may then have small Conifers for winter adornment while the bulbs are being brought slowly onward for employment in the early spring.

Whichever method commends itself to the cultivator, he will

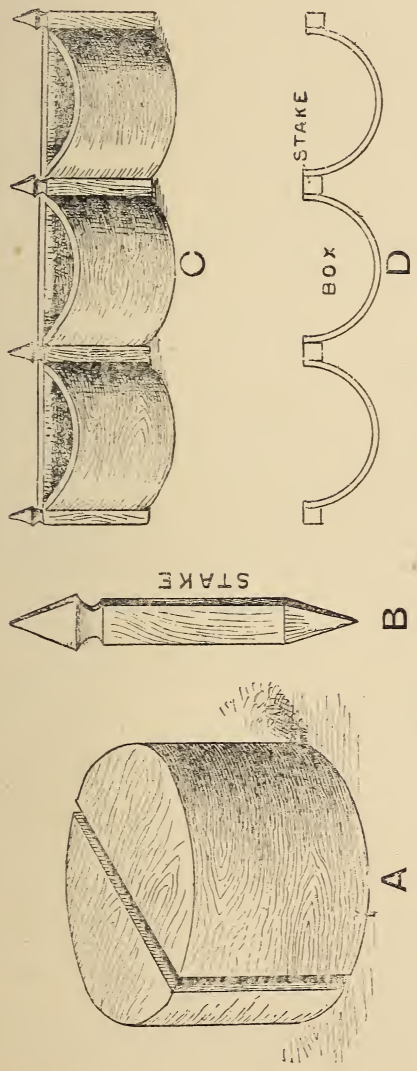


FIG. 10.—A PRETTY ADDITION TO A WINDOW BOX OF BULBS.

REFERENCES.

- A, small cheese boxes cut in half.
- B, ornamental stakes.
- C, the halves fixed to the front of the window box, with the stakes between and at the ends.
- D, section of boxes and stakes.

These appendages may be filled with soil and planted with small bulbs.

adopt the same initial principles to bring success. The boxes are, of course, made of the proper size to fit the window sills, and they may be faced with cork or tiles entirely at the discretion of the owner, though if the latter are selected it behoves the purchaser to proceed warily or he will find that he has chosen a tile that immensely detracts from the floricultural effect. Each box must have a certain number of holes from which the water will pass freely, and as an additional precaution it is desirable that small struts be fixed on the base so as to elevate the erection about 1 inch above the stone sill.

The soil for bulbs in boxes may advantageously be similar to that used in pot culture, but if this is not convenient excellent results will accrue from the use of ordinary garden mould, provided special care is exercised in the matter of drainage and in regard to the feeding that will be necessary at a later date. An abundance of material to ensure drainage should be utilised, and it must be most carefully protected from the incursions of the fine soil by the use of plenty of the rougher portions of the compost or some coarse moss. There should be no hesitation in using a lot of material at the bottom of the receptacle, as this is almost invariably made quite 3 inches deeper than it need be as far as the bulbs are concerned, so that one can easily afford space for the purpose indicated. The reduction of the bulk of soil is not only convenient but desirable, because it reduces the probability of souring to the lowest point. Later on, when the bulbs have made plenty of roots and are swelling up the flower spikes, it is a very simple matter indeed to make up for any deficiency in the soil by special feeding with liquid or concentrated foods in the manner suggested for bulb growing in pots. At that stage the plants are gross feeders, and the food given is instantly appropriated by the roots, whereas had it been put in at the start much of the best ingredients would have been wasted.

In the selection of the bulbs to be employed the owner must, of course, decide for himself, as there can be no governing factor other than personal taste, but it is always desirable for window gardeners to remember that they are cultivating for the general public as well as for themselves to a much greater degree than those who follow up any other phase of the art. They should, therefore, plant in a manner that they have reason to believe will meet with universal acceptance, and not in a style that will possibly irritate the nerves of every passer-by. It is thus that the gardener may do such a lot of good, for it is more than probable that the delightful style of planting which he has adopted will lead some fresh recruit into the ranks of window gardeners; and thus our streets and roads will continue to grow in beauty until all sills have their occupants, and our town and village streets will be infinitely improved.

All the hardy bulbs are available for window box planting, but there are some whose value is very much greater than that of others. Three kinds rise conspicuously above all others in general utility, and these, it is almost needless to state, are Hyacinths, Narcissi, and Tulips, with Crocuses, Scillas, and Snowdrops to furnish the

front. Unless there is some special reason for doing so, it is not desirable to plant in the perfectly straight lines that one usually observes, though the cultivator has an excuse for this in that he is following the lines of the structure. At the same time slight irregularity is almost certain to produce a finer effect. Tall Tulips of imposing appearance, Keizer's Kroon for example, might have the position closest to the window, with white Hyacinths in front, and, if the box has no greater holding capacity than three rows, golden yellow Crocuses intermingled with *Scilla Sibirica* as an edging. This is one of the simplest arrangements that can be found, but at the same time it is one of the most effective.

If it is feasible, as it will be where there are two boxes for each window, the receptacle, after planting, should be placed in some dark position precisely as would be done in the case of bulbs in pots or in glasses and for exactly the same purpose. Do not apply any water at all before it becomes imperative to do so, and then give just sufficient to thoroughly moisten the compost right through to the drainage. The surface may be covered with cocoanut fibre refuse, as well to improve the general appearance as to reduce the necessity for watering by conserving the moisture in the soil. When the movement in and above the mould is active, the top growth should be gradually inured to the full light in the same manner and with the same care as that of bulbs which are growing in pots. Never try to force the plants to come into flower, as though one can easily hasten them a little; it is bad policy, because they will feel the cold so much when put out that the probabilities are they will succumb.



Chapter VI.—Bulbs in the Woodland.

THE very sound of the heading of the present chapter will appal the town gardener, whose area is limited to so many square feet of cat-infested land. He will probably pass it over with a shrug of the shoulders and a muttered expression of its uselessness, and, mayhap, a pang of envy at his more fortunate brethren who are blessed with woodlands in which to plant bulbs and wander at will. Assuredly woodland walks and dells add immensely to the interest of any estate, particularly when beneficent Nature has done the planting for us in her own inimitable way. If we gardeners could copy Nature with perfect accuracy, our gardens, especially in the wilder portions such as the woodland, would be infinitely more beautiful than they are ; but, failing in this, we must do our best with Nature as the teacher.

The observant travelling horticulturist soon realises that Nature's motto is summed up in one short word, "boldness." Look at the Bluebells (see p. 37) and the Lilies of the Valley in the wood, the Heather on the hillside, the Willow Herb on the waste ground, and see whether they do not all create an air of boldness, even though it may be, and often is, softened down by its surroundings until it appears as the sweetest simplicity. These are merely a few instances out of the many that could be cited, but they suffice for the present purpose, which is to impress upon woodland planters the absolute necessity for strong conceptions, or an effect may be produced that will be nothing more than a poor burlesque upon Nature in one of her most delightful guises. True, one must always adopt the tailor's law and cut according to the cloth, but it is irrefutable that in woodland planting the finest effects are produced when we can think in thousands and plant in acres.

It is no easy matter to plant woodland walks and glades successfully, as so much depends upon the soil and the trees, which will inevitably bring failure to some bulbs, while others would flourish and increase enormously. Here, again, it is the soundest of sound advice to say, "Copy Nature." When it is decided to plant, spend as much time as can be afforded in the neighbouring woods studying the vegetation there, and taking particular note of the plants that are known to spring from a bulbous root. Never hurry over this, as it will certainly prove to be time well spent, for it is no small loss to put in, as one may easily do at this work, 10,000 or 20,000 bulbs, only to find them fail owing to some local inadaptability, which could readily have been avoided by the exercise of care and forethought in



FIG. 11. — BLUEBELLS IN A WOOD.

the direction indicated. It is not merely the cost of the bulbs themselves that is thrown away; we have also to consider the time that has been expended in planting, and the disappointment that must accrue from the loss of the display for one or more years.

Apart from the thorough appreciation of the facts set forth, the actual process of planting will be the same as in that for grass gardening, only that the work will not be quite so carefully done, as the loss of a dozen bulbs out of several thousands will not cause any serious regret, as would be the case where only a hundred or so had been put in. Of course, this must not be read as inferring that simply throwing the bulbs into their places without care or thought of the results should be tolerated, for this is by no means the case. It is intended to convey the idea that the elaboration of detail may be safely avoided, but does not warrant the planter in going beyond all the bounds of reason.

Broadly speaking, all the kinds of bulbs that can be grown in the grass are available for woodland planting, but actually such is not the case, for it behoves the majority of us at any rate to take some cognisance of cost, and this alone will put many very beautiful bulbous plants quite out of court, as the expense of purchasing the requisite number would be utterly prohibitive. Apart altogether from the monetary aspect of the question, we have also to keep in view the fact that we are now about to produce a bold effect, for which purpose it is probable that a cheap Daffodil or other bulb will be equally as serviceable as one that cost ten times the money; we are not proposing to study the points of an individual flower, but to create a spectacle that will charm by its breadth and boldness. For these reasons it will be permissible to recommend the purchase of the cheaper Daffodils, Crocuses, Tulips, Scillas, and any others for which there may be a desire, remembering always that the pot grown bulbs that are not required for grass gardening can be profitably utilised in the woodland.

To those whose best semblance of the woodland lies in a hedge-row consolation may be found in the knowledge that the banks may be planted with bulbs with the most charming results, as can be seen in many a garden of very modest extent and in scores of greater pretensions. One of the prettiest May pictures in Barrs' nurseries at Long Ditton is a bank upon the side of which several hundreds of bulbs of *Muscari comosum*, Heavenly Blue, were planted a few years ago. Here and there amongst the *Muscari* Daffodils nod their heads, and, though comparatively limited in numbers, they unquestionably play a conspicuous part in the general effect. Such a picture is within the reach of hundreds of garden owners, whose grass clad banks could be cheaply and quickly made twenty-fold more attractive than they now are.

Chapter VII.—Bulbs in Grass.

THE charms of bulbous flowers are never better exemplified than when the blooms are seen rising from the soft green turf and swaying in the slightest breeze that blows. Their popularisation for this purpose is largely due to the admirable manner in which they have been employed in the botanic gardens in various parts of the country, notably at Kew, where the annual displays rank with the most beautiful horticultural features of the year; to the splendid effects that the superintendents of our public parks and gardens have made, one of the finest London pictures being in Battersea Park; and to the strenuous support that the system has received from such leading lights in the world of gardening as Miss Willmott, V.M.H., and Mr. Wm. Robinson. These enthusiastic amateurs have put Daffodils in the turf of their estates in all directions, and the results are beautiful beyond description in the early months of the year.

It is, unfortunately, not possible for every one of us to plant bulbs in the numbers that we see in the places adverted to in the preceding paragraph, for the simple reason that our gardens are not sufficiently large to allow of it. We may, however, all do a little in the right direction by utilising the bulbs which have been flowered in pots, and which are too frequently thrown away, for positions in the grass where the ragged appearance created by the dying leaves of the bulbs and the coarse condition of grass consequent upon neglect of cutting is not deemed too serious an eyesore. Herein lies the one disadvantage that accrues to the cultivation of bulbs in grass, for it is imperative that the foliage be left upon the plants until, having turned quite yellow, it has obviously fulfilled its functions and may be removed. This process of perfect maturation, which is so essential to success, involves delay in mowing, hence the undesirability of planting bulbs immediately in sight of windows, where the untidiness would undoubtedly be intolerable.

Passing a short distance from the parterre, which is always kept trim and tidy, so as to be in harmony with the external appearance of the house, there will probably come a bend in the grass with a background of shrubs and trees, and it is from just such spots as these that the greatest value can be derived in grass gardening, for the visitor treading the smooth turf will turn quite unexpectedly upon a picture of golden Daffodils or gorgeous Tulips, whose flowers, with their soft background, will astonish and delight him beyond measure. Here the long grass does not irritate by its unkempt

appearance, but is gladly tolerated because it aids substantially in producing one of the most charming corners of the garden in spring.

It has already been said that the bulbs which have done a season of excellent service in the greenhouse are of the utmost value for planting in grass, and, unfortunately, some persons appear to think that because old bulbs are being utilised it becomes little more than a waste of valuable time to give care and thought to good and effective work. This is not, however, the way to set about any gardening operation, or it is certain that failure in a greater or lesser degree will be the lot of the gardener. Success demands that each detail shall have proper attention, and grass gardening affords no exception to the rule.

The commonest error of all is that which results in the bulbs being planted in lines, and thus tends to bring the formality of the flower garden beyond its sphere. Straight lines or regular curves should be avoided, and the planting must be so done as to give the best possible idea of natural growth. This is by no means an easy thing to do, more especially where the amount of space available for the purpose is at all limited. The most satisfactory results have been found to follow upon the studied neglect of any suspicion of a plan, and this is best ensured by standing some little distance away from the place that is to be planted and, taking a good handful of bulbs, throwing vigorously so as to make them scatter as much as possible. Or, as an excellent alternative, stand in the centre of the area and throw the handful of bulbs high above the head, giving the wrist a rotatory motion at the moment of ejection. In both cases the subsequent movements will be the same, and will consist of putting each bulb into the soil at the spot where it fell.

Some objection may be raised to this practice on the score that there is a liability of many of the bulbs being lost through its adoption, but, as a matter of fact, the danger in this direction is slight, and if one or two do go astray it will not be a serious matter, as the varieties which are usually requisitioned for the purpose are not generally the expensive ones, but rather those which can be bought very cheaply. Again, the shortness of the grass in autumn when the planting is done favours the ready finding of every bulb by an operator who exercises a reasonable amount of care in his work.

In the distribution of the bulbs in the manner indicated, one has to take into previous consideration the space at command, and whether it is desired to have masses of one kind or variety, or a mixture of as many as can be got together. There can scarcely be two opinions as to which system will produce the more striking effects, and that is separate masses. But this means that a fairly extensive amount of room must be accorded, as two or three bulbs of a variety are apt to look somewhat forlorn in their splendid isolation. Let the determining factor, therefore, be size and nothing else, having masses or mixtures just as the space will allow. If the latter is the only feasible plan, then mix Tulips, Crocuses, Snake's

Head Lilies and Daffodils in one basket, whence they may be drawn for distribution in handfuls that are as varied as they can be made without attempting anything in the way of selection.

The actual planting demands skill, care, and the use of proper tools. It is first of all necessary to cut out the piece of turf beneath the waiting bulb, and then to substitute for the soil some sound loam if it is thought that the natural mould is at all poor. Next the bulb or bulbs will be placed in position precisely as one would do were the work being carried out in the flower beds and borders. After the covering of soil, new or old as the case may be, is put on, it only remains to replace the piece of turf that was removed before the work may be said to be completed. The requisites are, then, a sharp turf cutter, a barrowload of prepared soil, and a cartload of common sense, which will ensure the results being in all respects satisfactory to everyone. It is somewhat tedious work certainly, but it will thoroughly repay for all the time that is spent upon it. For those who would have a turf cutter and a soil excavator in the same tool, there is nothing to equal the admirable implement that has been invented by Barrs for this express purpose, as it is easy to handle and does its work in a perfect manner.

IN the foregoing chapters general hints on bulb culture in various forms have been given. In the succeeding chapters the principal bulbous and allied plants will be dealt with in alphabetical order, selections of varieties and special remarks on culture being given where required.

Chapter VIII.—*Achimenes*, *Aconites*, *Anomatheca*.

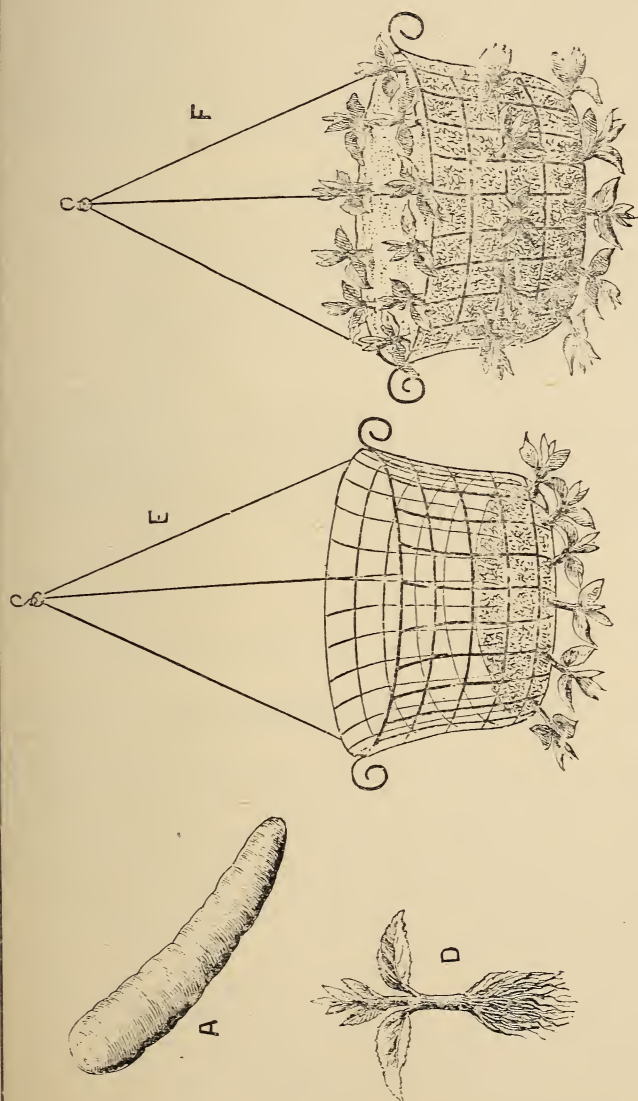
Achimenes.—These are in some degree plants of a past decade, for in the days that have gone there were few warm greenhouses whence they were absent. The provision of good fibrous loam in well-drained pots or pans, careful attention in respect of watering and staking, with a season of absolute rest after flowering, and a warm, moist atmosphere during the time of active growth, will be found to practically ensure success. *Achimenes* make excellent basket plants. Species and hybrids are numerous, and afford a fine diversity of colour. A collection of six or twelve named varieties from a reliable source usually gives every satisfaction. (*See p. 43.*)

Aconites.—Who does not know and love the delightful winter Aconite, known to the wise as *Eranthis hyemalis*? It is one of the first flowers of the spring, and its cheerful yellow blooms in their ruff of bright green leaves are ever welcome. Tubers should be planted as early in autumn as possible. It is useful for borders, grass, or for semi-shaded positions in the woods. The species *Cilicica* is much later flowering, and has deeper hued blooms.

Anomatheca cruenta.—By this name many of us have grown what the botanist now describes as *Lapeyrouisia cruenta*. It is a charming but rather tender plant, which must be accorded frame treatment except in warm climates. A light, sandy loam is the most suitable soil, and whether in or out of doors perfect drainage is essential. The colour of the species named is crimson, *grandiflora* is scarlet, and *juncea* is pink. Propagation is by seeds or offsets.

Chapter IX.—*Alliums*.

THERE are a large number of species in this genus, many being of considerable beauty for borders; while some are of value for culture in pots. For garden purposes, however, the selection may be limited with comparative ease to about a dozen kinds. The objection brought against these plants by the majority of people is that they have a very



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 12.—ACHIMENES FOR HANGING BASKETS.

A, tubercle ready for starting in February.
 D, plant ready for putting in the basket.
 E, basket lined with moss and young plants put in, heads outward.
 F, basket filled up.

strong smell of Onions, and for this reason cannot be grown. But in some, notably in *A. Neapolitanum*, this is not apparent unless the flower is handled, and few persons are likely to do that when they know the consequences. The bulbs are all strongly impregnated with the Onion odour, but it can be readily removed from the hands upon the completion of planting with the aid of plenty of water and soap. Economically the genus is of immense value, as it comprises the Onion, Shallot, and Garlic.

Selection of Alliums.

<i>acuminatum</i> , deep rose.	<i>narcissiflorum</i> , rose.
<i>ceruleum</i> , sky blue.	* <i>Neapolitanum</i> , white.
* <i>Hermettii grandiflorum</i> , white.	<i>Ostrowskianum</i> , rose.
<i>Karataviense</i> , white.	<i>roseum</i> , rose.
<i>Macnabianum</i> , white.	<i>spherocephalum</i> , purple.
<i>Moly</i> , yellow, handsome.	<i>triquetrum</i> , white.

All the species that are included in the foregoing brief list are perfectly hardy in our gardens, and the same may be said of the few others that receive occasional notice for the sake of their distinctness in the border of mixed plants. It should, however, be remembered that at least two are extremely useful for forcing in pots, and these are indicated by an asterisk.

Chapter X.—*Alströmerias*.

“Ah!” someone may say, “It is all very well to recommend *Alströmerias*, but they will not grow in my garden.” Well, let us ask, “Is that the fault of the garden, the grower, or the *Alströmerias*?” The Chilian Herb Lilies are certainly not a success on heavy, cold soils, or in water-logged gardens, but in a fairly warm position and well drained soil they can be induced to thrive amazingly without any other trouble than the mere planting, a good dose of water in dry summers, (liquid manure if it can be spared), and a little dry litter spread over the roots in the winter. Surely this is not too much to ask for one of the choicest of border plants. The finest clump we have seen was in the master’s tiny garden behind a Surrey village school.

The quaint little sausage-shaped tubers, so quaintly strung together, need to be planted from 6 inches to 9 inches deep, in the autumn. If the staple soil is not suitable, it must be made so by the addition of leaf mould and sand, for it is well worth while

to take the trouble. One may go so far as to excavate a bed or border to the depth of 2 feet, putting 3 or 4 inches of crocks and broken bricks in the bottom, overlaying this with turf or rough soil, and filling up the rest of the space with a light, rich compost of loam, leaf soil, and old hot bed manure, with some coarse sand. But it is not often necessary to go this length, as *Alströmerias* do quite well in a properly prepared flower border. They are likely to suffer more from damp in winter than from frost.

Selection of *Alströmerias*.

aurantiaca, orange, spotted red.	<i>Pelegrina</i> , white and pale purple, shaded yellow and spotted purple.
aurea, golden yellow.	<i>Peruviana</i> , purple and yellow; of this there are several varieties.
<i>Chilensis</i> , yellow, crimson and purple.	<i>psittacina</i> , crimson, tipped green and spotted purple.
<i>Errembaultii</i> , rose and white, spotted crimson and yellow.	<i>violacea</i> , violet.

We do not recommend *Alströmerias* for pot culture, except in the case of *Pelegrina* and its variety *alba*, which require greenhouse protection.

Chapter XI.—*Amaryllises*.

FOR the purposes of this chat *Amaryllises* will only be regarded as consisting of those superbly gorgeous bulbous plants that have been brought into existence by the art of the florist, and are known, as a class, by the titles of *Amaryllis* and *Hippeastrum*. Bulbs of named varieties are somewhat expensive, but it is best to start with a few of these if the grower intends to be the raiser of meritorious seedlings. Fine results are to be obtained from the produce of purchased seeds, but about three years will elapse ere seedlings reach a flowering size. Given the necessary patience and ability, it is not difficult to work up a choice collection in the course of a few years, provided rigid selection is practised as each flowering season comes round. (*See p. 47.*)

Sow the seeds, as soon as they are thoroughly ripe, in well-drained pots or pans, in a light mixture of loam, leaf mould, and sand. In a temperature of from 60° to 70° germination is rapid, and it will not be long before the seedlings need more room. When they have made three or four tiny leaves, put them singly into 3-inch pots, in a similar compost, but of rougher texture. After they

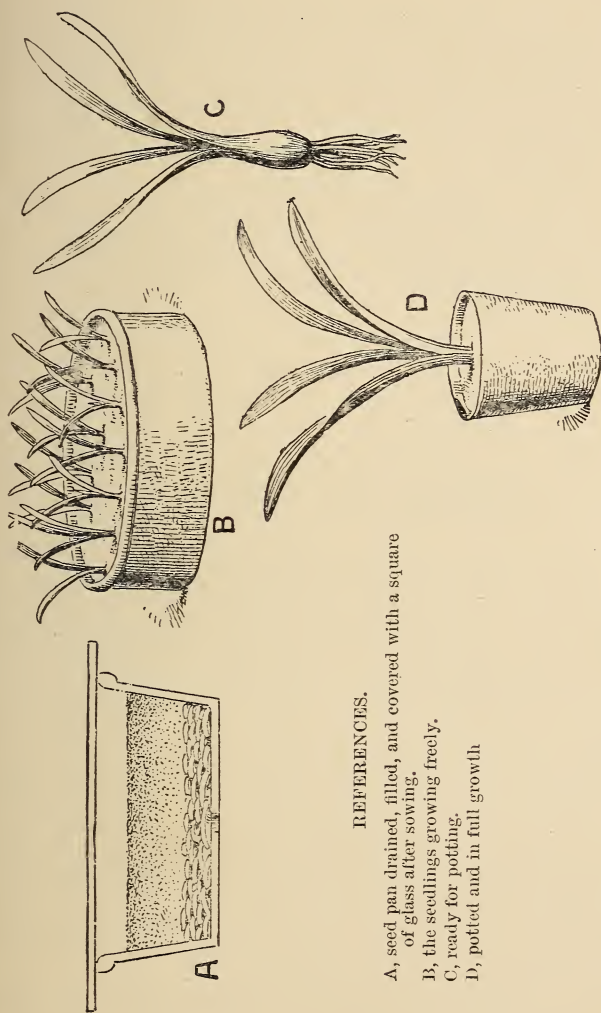
become established in these pots a temperature of from 50° to 60° will suffice. In their earlier stages of growth *Amaryllis* seedlings do not require the winter rest that is so essential a part of the culture of old bulbs. During the winter, however, less warmth and moisture are needed. Further potting must follow as the demands of the plants dictate.

Now turn to bulbs of a flowering size and age. Early in the new year they should be shaken out of the exhausted soil, and potted in a compost of 2 parts loam, 1 part decayed cow manure, and a good sprinkling of sand. Where there are facilities for so doing, it is a capital plan to stack the turves of loam, with layers of fresh cow manure between, six months before the soil is needed; this advice applies with equal force to many other subjects that like rich feeding. Crock the pots well, and pot the bulbs firmly. Do not fall into the frequent error of overpotting. Bulbs we may expect to flower for the first time will generally find accommodation in 5-inch pots, and those a size larger may be placed in pots with a diameter of 6 inches. The largest bulbs should be reserved for 8-inch pots, and it will be in very rare cases that a 9-inch pot will be required. This, of course, has reference only to single bulbs; it is quite open to anyone to put several bulbs in a pot of a larger size, but this form of culture has little to commend it.

At the conclusion of potting, each bulb should stand with its neck, and the whole of its upper surface, above the soil. Plunge the pots to the rim in spent tan or cocoanut fibre refuse where there is a slight bottom heat, but the temperature of the house or pit should be an intermediate one, the object being to secure good root action before the spikes appear. No water must be given until spikes or leaves have made some slight progress, hence it is necessary that the soil be moderately moist at potting time. The hurry to give water at a time when there are neither roots nor leaves to use it has proved a stumbling-block in many cases.

The large, handsome, broadly trumpet shaped flowers will expand about March or April, but it is easy to delay the flowering, by cooler conditions, if such be deemed desirable. Plenty of fresh air, but no draughts, should be an accompaniment of the season of flowers, as the plants will then suffer no harm if placed in the conservatory for a week or so. After flowering there must be a return to the old quarters, and the provision of a higher temperature with additional moisture; frequent syringings are advisable to secure free growth, and to keep down insect pests. As soon as leaf growth is complete reduce the water supply, and cease to syringe. Continue the reduction gradually until the leaves are yellow, when watering must cease entirely for the season, and abundance of air and full sunshine must be permitted to play upon the plants to ripen and solidify the bulbs. Remove the stock from the plunge bed, and winter it in a temperature of from 45° to 50°.

It is only justice to state that the principal raisers of *Amaryllis*es in this country are Messrs. J. Veitch and Sons, of Chelsea, and



REFERENCES.

- A, seed pan drained, filled, and covered with a square of glass after sowing.
- B, the seedlings growing freely.
- C, ready for potting.
- D, potted and in full growth

PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 13.—RAISING AMARYLLISES FROM SEED.

R. P. Ker and Sons, of Aigburth, Liverpool. They have both beaten our Continental neighbours on many occasions.

Selection of Amaryllises.

Acidale, light scarlet.	Juno, scarlet and white.
Autocrat, scarlet, striped white.	Meteor, white, striped crimson.
Beethoven, orange, veined white.	Olympia, crimson scarlet, shaded orange.
Chancellor, red, striped white.	Prince of Orange, orange, shaded white.
Duke of Albany, deep scarlet.	Queen Victoria, white, striped crimson.
George Nicholson, blood red, feathered white.	Robur, rich carmine.
Her Majesty, white, shaded scarlet.	Star of India, carmine, white stripes.

Chapter XII.—Anemones.

THERE are few hardy tuberous-rooted plants grown in gardens that are more popular than the brilliantly beautiful Anemones, whose flowers are with us from the earliest days of spring until the frosts of winter come to rob us of their charms. Commensurate with the length of the flowering season are the range of colouration, the varied forms and sizes of blooms, and the great differences in the stature and habit of the several kinds. They range from the lowly *A. ranunculoides* to the 3 feet high *A. Japonica*, or, if we wish, to the stately species *A. Fanninii*, which requires greenhouse culture.

Not only are Anemones of the utmost value for garden decoration, but they are also excellent for cutting purposes. The blooms do not last as long as those of many other plants, it is true, but if secured before full expansion their life is of sufficiently long duration to bring a great amount of pleasure. The time of gathering has an effect not only upon the longevity of the flower, but also on its suitability for vases, as with age the stems, naturally somewhat weak for the burden they have to carry, lose rigidity, and fail to hold up the flower so that its full beauty can be appreciated.

As far as garden purposes are concerned, species of Anemones are not particularly numerous, but the varieties are apparently innumerable; fortunately for those who abhor labels in the herbaceous border and garden the mania for naming every little variation does not appear to have invaded the Anemone family to quite the same

degree that it has many other genera, and we can have, if we wish, at least a hundred different varieties under no more than two or three names. Except in a few instances no attempt is here made to include varietal names, but where it appeared to enhance the utility of the selection, the case of *A. Japonica* to wit, it has been done. *A. Hepatica* and its varieties have been for years grown as *Hepaticas*, and, despite the change made by the botanists, by this appellation they are still known, grown, and loved in the vast majority of gardens; they will, therefore, be treated of under *Hepatica*.

Selection of Anemones.

- Aldeburgh, resembling *A. fulgens*, but larger and rounder, colours varied.
- Alpina, white.
- Apenmina, blue; rose and white varieties.
- blanda, blue or white; *Seythnica* and *Taurica* are fine varieties.
- coronaria, almost all colours; there are different strains of this species, of which the *St. Brigid* and the *Alderborough St. Brigid* are the best.
- fulgens, glowing scarlet; the double forms, as well as the varieties *multipetala* and *Greca*, are worth growing.
- Hortensis, colours various; the variety named *stellata flore pleno* is interesting and beautiful.
- Japonica*, red; there are several named varieties of exceptional merit, including *alba*, *hybrida*, *Lady Ardilaun*, *Lord Ardilaun*, *Whirlwind*, *Coupe d' Argent*, and *Beauté Parfaite*.
- narcissiflora*, white.
- nemorosa*, white; several varieties, of which *Allenii*, *cerulea*, *flore pleno*, *purpurea*, *Robinsoniana*, *rosea*, and the quaint *bracteata* are the best.
- polyanthes*, white.
- Pulsatilla* (the *Pasque Flower*), blue.
- ranunculoides*, yellow; very dwarf.
- rivularis*, white.
- sylvestris*, white; the double form is charming.

As everyone knows, we get scores of thousands of *Anemone* flowers from the south of France each season; the varieties principally sent are *Chapeau du Cardinal* and *Rose de Nice*, both of which are well worth growing at home expressly for cutting purposes.

For depth of planting *Crown Anemones*, see Fig. 1, pp. 8 and 9. These flowers are easily raised from seed sown in spring.

Chapter XIII.—Arum Lilies.

POPULARLY known by many quite permissible names, such as Lily of the Nile and Calla or *Richardia Aethiopica*, *Richardia Africana* is a universal favourite. Its superb white flowers are regarded as indispensable in many forms of floral decorations. It is hardier than people appear to imagine, succeeding out of doors in all except the coldest districts if planted in water. It is, however, as a greenhouse plant that the Arum Lily shines. Provide a sound loam, give pure water and liquid manure generously when the plants are approaching the flowering stage, plant them out in well manured ground in summer, watering freely in hot, dry weather, and no difficulty should be experienced in getting an abundance of blooms over a period varying with the conveniences for hastening or retarding the plants. The variety Little Gem is not usually regarded as quite so free flowering as the type, but it is very beautiful, and no effort should be spared to induce it to succeed. The yellows, *Elliottiana* and *Pentlandi*, are also popular. Propagation may be readily effected by division either before or after planting, giving preference to the latter. The pot plants which are planted out in summer should be lifted in early autumn. The true Arums are much more curious than beautiful; they grow well in any good soil, and prefer an open, sunny position, where some protection can be afforded in winter in cold districts. *Italicum*, *Dracunculus*, and *Palestinum* are three of the best.

Chapter XIV.—Babianias.

THE old saying "Good things are usually done up in small parcels" is eminently applicable to the beautiful little Babianias, for these fairy-like flowers are frequently passed over for others that have little else except size to recommend them. Seldom exceeding 9 inches in height, even under the most favourable conditions, Babianias must be regarded as jewels requiring a careful setting. Nature has herself been kind to these gems among Cape bulbs, and has provided them with plaited, hairy, deep green leaves, against which the bright hued flowers show up well.

In the northern parts of the kingdom Babianias are usually wasted if planted out of doors, but in the "sunny south" the garden may be

made the brighter by their presence during the months of June and July. Success only comes to those who work for it, and the work in this particular instance means the preparation of a bed of light soil, well drained, and raised 6 inches above the surrounding level. Sandy loam, with plenty of leaf soil, and some old decomposed stable manure will suit admirably, but in many gardens the addition of leaf soil and sand is all that will be necessary. Choose a sunny position; plant the bulbs—corms to be strictly correct—3 inches deep, and protect them with a covering of Bracken or litter until March.

Where climatic influences preclude outdoor culture recourse must be had to pots. Put five bulbs in each 4-inch pot, plunge the pots in cocoanut fibre refuse in a cold frame, and when growth commences put the plants on a shelf in the greenhouse. If there is one point that needs to be emphasised more than another in dealing with the pot culture of Babianas, it is the advice to give no water until the leaves appear.

Selection of Babianas.

stricta, white and blue.

Of this there are several pretty varieties, notably *atrocyanea*, dark blue; *rubro-cyanea*, blue and crimson; and *sulphurea*, pale yellow.

ringens, scarlet.

Mixed Babianas are so cheap that where it is not essential that colours be kept separate these will give equal satisfaction.

Chapter XV.—Begonias.

HORTICULTURE hath her triumphs as great as any that adorn the banners of other arts and sciences. Her progress is quiet, but none the less sure. We are led to make this reflection by the present subject. The history of the Tuberous Begonia is a fascinating one. Started on its way by Messrs. J. Veitch and Sons, the race was taken in hand by that famous old florist the late Mr. John Laing, who brought it into popularity, and showed to the world what wonderful capacity a flower has for improvement in the hands of a patient individual who has a strong and scientifically founded belief in its possibilities. Other firms and individuals have entered enthusiastically into the work of improvement. One has but to visit the Temple Show a couple of years in succession to find that such names as Cannell, Ware, Blackmore and Langdon, Davis, Jones, and many others are all associated in horticultural circles with Begonias of the highest quality.

Double Begonias have a clever way of imitating other flowers closely, yet without losing their identity; they personate Roses, Peonies, and Hollyhocks in a wonderful manner, but latterly they have

copied the fashion of our lady friends and gone in strongly for frills and laces; in other words, we have the heavily crested Begonia. Further, mated with some of the winter-flowering species the Tuberous Begonia has been the means of providing us with a race of plants that brought brightness and beauty into the winter of our discontent. Messrs. Veitch and Sons and M. Lemoine bear off the honours for this new race.

The advice given for raising Gloxinias from seed (p. 114) applies with equal force here, but after the seedling stage is passed the Begonias require an intermediate rather than a stove temperature, and in due course they will find a happy home in the greenhouse, *en route* for the conservatory, or reach the flower garden *via* a cold frame. Begonias are liable to damp off while still in the seed pan; the remedy is air and not too much moisture, coupled with the transference of the tiny plantlets to other pans at the earliest moment possible. Delay of a few hours only may mean all the difference between success and failure, for the dreaded "damp" will clear off a pan of seedlings in a night.

February, or early March, is a good time to start old tubers into growth, and there is no better plan than just covering them with leaf soil or cocoanut fibre refuse in a warm greenhouse or on a hotbed under a frame. With the production of roots and the commencement of stem growth potting must proceed apace. Select the tubers for pot culture, and provide them with a substantial compost of loam, leaf soil, dried cow manure, and sand; Begonias love good living. From now right on to the conservatory or the exhibition tent should be a steady march of progress. As the weather grows warmer air should be more freely given, and if there is a deep, unheated pit at disposal, it is the right place for the plants during the early summer. Thinning and tying out the growths are details upon which time is well spent, and liquid feeding is an item that must on no account be overlooked. Liquid cow manure, the colour of pale ale, is the best and safest food for Begonias, but soot water given occasionally adds colour and vigour to leaf and branch.

For summer bedding the started tubers give the best results for a minimum of trouble if planted in a warm pit, in a bed of moderately rich soil. Sturdy plants are now the aim rather than large ones, and this method enables the grower to inure his stock to outdoor conditions in the easiest and best manner possible, so as to be ready for planting out in early June.

Winter flowering varieties are chiefly the children of a species named *Socotrana*. Those having a Tuberous Begonia as one parent are propagated annually from cuttings of young growth produced by plants that have been rested and then started in brisk heat. Such cuttings are put singly into small pots filled with sandy soil and placed in a close propagating frame. What may be called "cool" stove treatment is well suited to their needs until about midsummer, but thence on to September less fire heat and more air will give the



PICTORIAL PRACTICE—PLAIN HINTS IN FEW WORDS.

FIG. 14.—PROPAGATING BEGONIAS BY CUTTINGS.

A, *Begonia Weltoniensis*; a, cut transversely below a joint; b, point of insertion.
 B, rooted cutting potted.
 C, cutting of Tuberous *Begonia*; c, sandy compost.
 D, tuber formed.
 E, cuttings inserted out of doors.



FIG. 15.—BEGONIA MABEL KEEVIL.

(See page 56.)



FIG. 16.—BEGONIA MRS. JOSEPH CHAMBERLAIN.

(See page 56.)

better results. Good loam, with some sand and a little dried cow manure, is an excellent mixture to pot this section in, but it is necessary to add a word of caution against the use of large pots; those of 6 inches diameter are big enough for the largest plant.

That other group of hybrids having Gloire de Lorraine as its type requires warmth all the year round. The rootstock of these latter is not a tuber, but rather a compact cluster of thickened buds that remain dormant for a short period. Very little water must be given them at this time, but to dry them off as in the case of a Tuberous Begonia or a Gloxinia would be to kill them; neither ought the temperature in which they rest to be lower than that in which they grew. Liberal feeding, an occasional dewing overhead, fumigation by the vaporising process, staking and tying, all play their part.

Selection of Begonias.

Double Varieties.

Aurora, yellow.
 Baron Schröder, orange scarlet.
 Beauty of Belgrove, rose pink.
 B. R. Davis, crimson,
 Duchess of Fife, white.
 Felix Crousse, orange scarlet.
 Henshaw Russell, orange.
 La France, rose.
 Mabel Keevil, white (*see p. 54.*)
 Mrs. Joseph Chamberlain, blush (*see p. 55.*)
 Mrs. Tweedie, white.
 Mrs. Lynch, salmon.
 Octavie, white.
 Rev. E. Lascelles, yellow.
 Rose Laing, rose pink.
 Sir J. Pender, salmon,

Single Varieties.

Beacon, crimson.
 Delight, pink.
 Duchess of Westminster, salmon.
 Firefly, crimson scarlet.
 Gloriosum, yellow.
 Hero of Omdurman, orange scarlet.
 King of the Begonias, crimson.
 Lady Grosvenor, salmon.
 Miss Cannell, rose pink.
 Prince of Orange, orange scarlet.
 Queen of Roses, rose.
 Queen of Yellows, yellow.
 Snowdrift, white.
 Snowstorm, white.

Winter Flowering Varieties.

Adonis, carmine.
 Caledonia, white.
 Ensign, red,
 Gloire de Lorraine, rose.
 Gloire de Sceaux, pink, dark leaves.
 John Heal, rosy carmine.
 Socotrana, rose.
 Turnford Hall, white.
 Winter Cheer, scarlet.
 Winter Gem, deep carmine.

Bedding Varieties.

Argus, glowing scarlet.
 Hollyhock, rich pink.
 Lafayette, crimson scarlet.
 Little Pet; this is rather a class name than a varietal one, as it includes almost the whole range of useful bedding colours, the several forms being known respectively as White Pet, Scarlet Pet, Yellow Pet, etc.
 Louise Robert, rose, double.
 Meteor, orange, bronze leaves.
 Mons. L. Urban, crimson, double.
 phosphorescens, scarlet, semi-double.
 Semperflorens Princess Beatrice, rose pink.
 Semperflorens Vernon, pink, metallic bronze leafage.
 Vesuvius, bright scarlet.
 Worthiana, orange scarlet.

Modern florists' varieties are now offered in distinct shades of colour, especially selected for bedding purposes; these are supplied as tubers or as seed, at the will of the customer. They are selected for their compact habit and erect flower stems, and they are extremely useful in the flower garden in wet summers, as they delight in cool, moist conditions that are fatal to a fine show of Zonal Geraniums.

Chapter XVI.—Belladonna Lilies.

It is gravely urged by those who either do not attempt its cultivation or have failed with it, that the beautiful Belladonna Lily has one serious failing, inasmuch as it does not produce its flowers and leaves simultaneously. If, for the sake of argument, we admit this is a failing, then the opposition must grant that, after all, it is only a small one. But the true plant lover will never allow his enthusiasm to be damped by such a criticism. A native of the Cape of Good Hope, *Amaryllis Belladonna* is not perfectly hardy in the sense that the Daffodils are hardy. Throughout the southern counties and in most of the sheltered districts of the kingdom it may, however, be successfully grown out of doors provided a few points are carefully followed. A narrow border, such as is frequently to be found on the south side of the dwelling or plant house, will be an ideal site if it is open to the sun and sheltered from strong winds.

Should the soil be poor, as it often is in a position of this kind, then it must receive the addition of decayed cow manure, while if heavy it must be lightened with leaf mould and coarse sand. In either case deep digging is essential a short time previous to planting the bulbs. The best time to plant is early autumn, just after the flowers have faded. Six inches is a suitable depth, and a similar distance should separate the bulbs. Winter protection must be provided, and it may consist either of straw litter, partially decayed leaves, or dry Bracken, but it must be removed as soon as the new foliage pushes forth in the spring. Planted in a border of the kind indicated, the Belladonna Lily is too often allowed to suffer from lack of moisture while in full growth, and the natural sequence is a poor crop of flowers at the end of the summer. Liquid manure applied in late spring and early summer will materially assist established bulbs.

The Belladonna Lily has bright rose coloured flowers; *blanda* and *pallida* are pale varieties, and *Kewensis* and *major* are larger and more richly coloured forms.

Chapter XVII.—Caladiums.

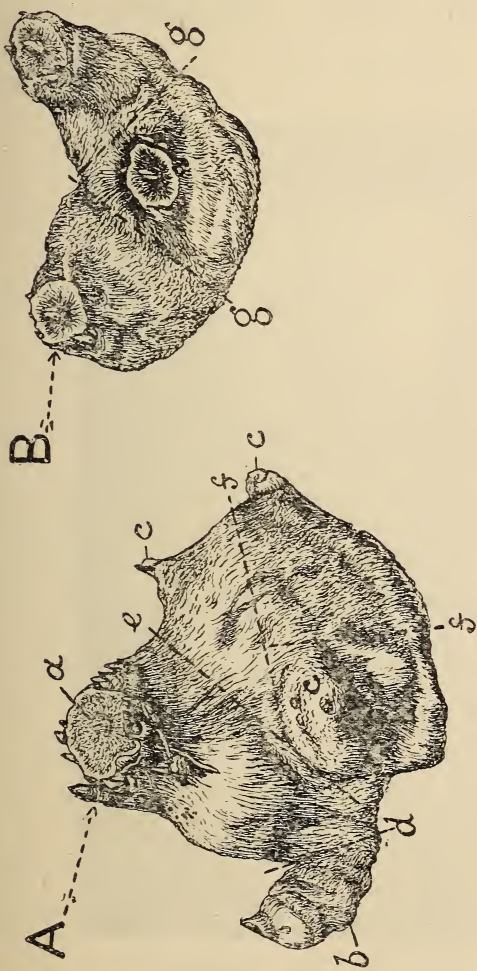
AMONGST all stove tuberous rooted plants that are cultivated for the beauty of their leafage the Caladiums are the most popular, and were it not for the fact that strong, moist heat is essential they would be found in all small as well as large gardens. The leaves vary in size from a diameter of 3 inches in the charming argyrites to 15 or 18 inches in candidum and others, while there is an intermediate size of which minus erubescens may be cited as an example. For the early summer months these plants are invaluable for the odd and characteristic air that no others would impart.

The propagation is readily effected in spring by division of the tubers as shown in the diagram, Fig. 17, p. 59, and the plants should have a rich compost comprising 2 parts of fibrous loam, 1 part of each fibrous peat, decomposed leaf mould, and dried and pounded cow manure, with sufficient coarse sand to insure perfect porosity. The pots should always stand upon a moist base, and at the same time atmospheric moisture with a temperature of 80° by day will be necessary so as to encourage the leaves to push up on long, strong foot stalks. Repotting must always be done early in the year, and, except where large specimens for the purpose of exhibition are required, 6-inch or 8-inch pots will meet all requirements.

As soon as the foliage begins to show signs of decay, which will be soon after midsummer, unless special treatment has been accorded, water should be gradually withheld with a view to ripening off the tops and maturing the tubers, which call for a decided rest every season if they are to continue in good health.

Selection of Caladiums.

argyrites (correctly Humboldtii), green and white	Charlotte Hoffmann, white
Amarante, red, violet, and rose.	candidum, white.
Auguste Charpentier, carmine, red, gold, and green.	Clio, rose, white, and green
Baron Adolphe de Rothschild, red, carmine, and green.	John Peed, red and green.
	minus erubescens, crimson and green.
	Oriflamme, red and green.
	Rose Laing, white and crimson.
	Silver Cloud, white, green, and carmine.



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 17.—PROPAGATING CALADIUMS.

A, large tubers: *a*, central crown; *b*, offset; *c*, undeveloped buds; *d*, detaching buds; *e*, halving main tuber, *f*, subdivision.
 B, tuber with 3 crowns: *g*, how to divide.

Propagation by offsets and division is effected in spring, in a temperature of 60° to 65° at night.

Chapter XVIII.—Calochorti.

COMMONLY known as Mariposa Lilies, these are amongst the most exquisitely beautiful of all the bulbous plants; some of



Photo: Cassell and Co., Ltd.

FIG. 18.—CALOCHORTUS SPLENDENS.

(See page 61.)

them only develop to perfection when afforded frame treatment, but many do equally well in the border or the bed. The species

are fairly numerous, but several are rarely seen in general cultivation. There is a strain of *C. venustus*, known as the Eldorado, that comprises many different colours, and in some the basal markings on the inner side of the segments are peculiarly refined. This, it may be said, is a characteristic of the majority of the species of this genus.

Selection of Calochorti.

albus, white.	Gunnisonii, white, yellow centre.
amenus, rich pink.	Howellii, white.
ceruleus, pale blue; several varieties.	pulchellus, yellow.
lilacinus, pale purple.	Purdyi, white.
luteus, yellow; the varieties citrinus and concolor are good.	splendens, lilac (<i>see p. 60</i>).
clavatus, yellow.	venustus, white; fine con- stitution.

Chapter XIX.—Cannas.

THOUGH there is no question that the beautiful *Canna* is rapidly attaining a place in public favour consistent with its merits, yet the plant is even now not appreciated in the same degree as many others which it is well qualified to displace. The ease with which it may be grown, the extreme brightness and beauty of its blossoms, and its stately and aristocratic appearance generally are all points which should tell strongly in its favour.

Possibly the size to which it attains is a drawback to its employment in very small gardens, but these same gardens often accommodate a *Dahlia*, *Sunflower*, or even *Hollyhock*, which takes every bit as much room as would a *Canna*, and which, moreover, has no greater claims to distinction. As a back row plant in a wide border, a subject to break up the monotony of a flat one, a centre for a bed of dwarfier plants, or even as a filler of large beds by itself, the *Canna* has very few equals, and, all things considered, no superiors. Too tall, perhaps, for a window box, on a verandah or balcony it is supreme, and even makes a noble ornament in a vase or tub. A dwarf race with beautiful flowers now exists.

Then, for conservatory, greenhouse, or dwelling-house decoration what could be finer than a well-grown *Canna* or a group of its well-flowered specimens? For halls and corridors it forms a splendid successor to the *Arum Lily* while that useful plant is resting, beautifies large fireplaces in a manner far beyond com-

parison from ordinary screens, and as an inmate of the fashionable large china or brass vases fills a corner in the drawing-room in a manner all its own.

For gorgeousness of blossom the *Canna* can give points to most of its congeners, the Orchid-flowered section yielding some of the most brilliant flowers known. Visitors to the fruit shows at the Crystal Palace will well recall how all others of Flora's progeny present paled their ineffectual fires before the all-conquering *Canna*, and at the large *Chrysanthemum* exhibitions its triumph over the 'Mum is only in less degree because of the vast disproportion of the respective flowers in number.

At one time *Canna* culture was thought to hold great secrets, but all of these—if, indeed, there were any—have now been revealed, and the generally accepted conclusion to-day is that the man who can grow good Dahlias will be equally successful with Cannas. In fact, in their propagation and general treatment the two can be very conveniently bracketed together, with the single exception, perhaps, that the *Canna* outshines its confrère as a pot plant. Both may be stored in a frostproof place during winter—giving the *Canna* first choice in the matter of warmth—and both can be propagated by seeds or division in spring. Nay, still further can the parallel be carried, for even as the *Dahlia* is started in heat, and its resultant shoots detached and struck as cuttings, so in like manner can the finest Cannas be grown, provided that a piece of the old rootstock accompanies each separated growth.

Many Cannas are worth growing for their foliage alone, which is often a beautiful bronze colour, and in some instances variegated. These, however, and indeed all the tall forms, such as those comprised in the Orchid-flowered section, should have a sheltered position afforded them, as rough winds soon spoil the beauty of their leaves. The *Gladiolus*-flowered sorts are dwarfer and stand breezes better; they are also more suitable for pot culture.

The beginning of June is quite early enough to bed Cannas out, and they are much benefited by a mulching of long manure and copious drenchings of water during hot, dry weather.

Seeds of a good strain yield handsome plants, with flowers of good size and colour, but anyone wishing to obtain the very best results would do well to plant named varieties, of which a selection is given herewith.

Selection of Cannas.

America, scarlet and orange.	Italia, orange scarlet, yellow margin.
Aurore, red.	Königin Charlotte, red, edged gold.
Austria, canary, dotted brown (<i>see p. 63</i>).	Menelik, reddish crimson.
Capri, salmon scarlet.	Madame Crozy, vermilion, edged gold.
Duchess of York, yellow, spotted red.	Pandora, red and gold.
Edouard André, red, spotted yellow.	Plato, red, flamed orange.



FIG. 19.—CANNA AUSTRIA.
(See page 62.)

Chapter XX.—Chionodoxas.

THE popular name of these most delightful bulbous plants is expressive of the period of the year at which they flower—Glory of the Snow. Beautiful, indeed, are the Chionodoxas, and one cannot simulate surprise at their ever-growing popularity. They are most



FIG. 20.—COLCHICUM AUTUMNALE.

(See page 65.)

frequently seen in association with the chaste single Snowdrop, and in positions that are wholly congenial to both kinds produce a charming picture. The species and varieties are not numerous, and those who cultivate them all will find no cause for regret. They are propagated both by seeds and offsets.

Allenii, violet, very free.
 grandiflora, violet, large
 and fine.
 Luciliae, blue and white.
 Luciliae alba, white, very
 choice.

Cretica, blue and white.
 nana, white, striped lilac,
 dwarf, rare.
 Sardensis, blue and white.
 Timolusii, purple, blue,
 and white, late.

Chapter XXI.—Colchicums.

THE popular name of "Autumn Crocuses" arose from the close resemblance of these flowers to the well-known Crocuses of spring, and has the merit of being accurately descriptive, if nothing more. They produce much larger blooms than Crocuses, and differ from these again in sending up their flowers in autumn and the bold leafage in spring.

Selection of Colchicums.

autumnale, purple. Numerous varieties, including double white, purple, rose and striped (*see p.64*)
Bornmülleri, purple and white.

Byzantinum, purple rose,
Sibthorpii, white, spotted purple.
speciosum, purplish rose.
variegatum, white, spotted lilac.

Chapter XXII.—Crinums.

FOREMOST though they be among the many fine members of the great Amaryllis family, it is an unpleasant fact that Crinums are not the plants for everybody. Beautiful in flower, stately in habit, and handsome in foliage, it is little wonder the owner of small glass structures and a garden whose soil is heavy and cold sadly shakes his head as he passes some splendid specimen in the more favoured garden of a neighbour.

For garden purposes Crinums can be divided into three sections, *i.e.* those requiring a stove temperature, those which succeed in a greenhouse, and the few that thrive in the open, and are, in fact, hardy in sheltered places. The two former are grown in large pots or tubs, in a compost of sound loam and peat, two parts of the former to one of the latter, with the addition of sufficient sharp sand to keep the whole porous. Crinums love plenty of water when growing and flowering, but with rare exceptions they abhor stagnant moisture. As the bulbs are large, the pots for their accommodation must of necessity be large too, and they must be effectively drained. Fortunately Crinums do not need re-potting every year after they reach a flowering size, but it is a good plan

to scrape off the top soil and give an annual top-dressing of fresh, rich soil; liquid manure is valuable to well established plants. In other respects the different requirements of the two sections are only questions of heat and moisture. A free use of the syringe throughout the summer, and frequent sponging of the foliage to ensure cleanliness, are two important items in *Crinum* culture.

Coming to those that have proved hardy in many parts of the kingdom, it is worth while remembering that biting winds and frost following wet weather are the chief causes of trouble, for while the bulbs are hardy enough the large leaves are not infrequently damaged, and the plant is thereby weakened to the extent of materially reducing the crop of bloom. For this division a sunny border, sheltered from strong winds, is desirable as a position; and the soil should be deep and rich, without containing any fresh manure; it must also be retentive of moisture, but not in any sense approaching stagnation. If the selected spot is in front of a stove or greenhouse, the chances of success are much improved. Plant the bulbs not less than 8 inches deep.

Selection of *Crinums*.

<i>amabile</i> , rose purple; stove.	<i>Kirkii</i> , white, striped red; stove.
<i>Americanum</i> , white, fragrant; greenhouse or hardy.	<i>longifolium</i> (<i>Capense</i>), pink; hardy. There is also a white form.
<i>augustum</i> , red; stove.	<i>Moorei</i> , rose; greenhouse or hardy.
<i>campanulatum</i> , red purple; greenhouse.	<i>Powellii</i> , rose; hardy, or greenhouse in cold localities. There are fine white and red varieties of this handsome hybrid.
<i>erubescens</i> , white and purple; stove.	
<i>giganteum</i> , ivory white, very sweet scented; stove.	

Chapter XXIII.—Crocuses.

THERE are among gardeners many who study and delight in bird life, doing all in their power to preserve our feathered friends. There is, however, one bird against which we all wage incessant warfare, especially in the spring, when the yellow Crocuses are in flower. The ubiquitous sparrow is the gardener's most inveterate enemy, for of good in the garden he does little or none, while of irreparable damage he annually does much. Sparrows strip our yellow Crocuses of their petals.

Notwithstanding the possibility of much of the beauty being destroyed by these marauders, it is indefensible to omit Crocuses

from the garden. In beds, in borders, or in grass they are invaluable, and the grower must take such steps as he considers wise to prevent or mitigate the possible damage.

Selection of Dutch Crocuses.

Albion, striped.	Mont Blanc, pure white.
*Avalanche, pure white.	Prince Albert, dark blue.
Celestial, blue.	purpurea grandiflora, rich purple.
Gladiator, dark blue.	*Sir Walter Scott, lilac striped.
John Bright, intense blue.	Vulcan, very deep purple.
*Golden Yellow, superb.	White Pearl, pure white.
*King of the Blues, rich purple blue.	
La Majestueuse, lilac striped.	

Four of the best are marked by an asterisk.

The varieties embodied in the above list may, if needed, be grown in pots, though where the most striking effects are required they may be advantageously planted in beds, for which purpose, however, those described as Large Yellow, Large Blue, Large White, Large Striped, and Cloth of Gold are generally employed with satisfactory results. The corms of these can be purchased so remarkably cheaply that they may be planted in thousands.

Species of Crocuses.

As in the case of Tulips, so in Crocuses; the species have a refined style of beauty, which the Dutch varieties can never give, and are in every way worthy of a hundredfold more attention than is at present accorded to them. Apart from this, by making a judicious choice, flowers may be had in abundance in August, when the Dutch sorts have long since gone to rest. It will be observed that the flowers of many species are smaller than the Dutch varieties, and the corms may, therefore, be planted rather closer.

Selections of Species.

<i>Spring flowering.</i>	<i>Autumn flowering.</i>
aureus, orange yellow.	Clusii, purple.
Balansæ, orange, feathered mahogany.	Hadriaticus, white.
biflorus, white.	longiflorus, lilac purple.
chrysanthus, orange.	nudiflorus, purple.
Danfordiæ, pale yellow.	pulchellus, blue.
Fleischeri, white, feathered purple.	sativus, purple.
Garganicus, yellow.	Scharojanii, richest golden yellow.
Imperati, exterior buff.	speciosus, lilac purple.
Sieberi, lilac.	Tournefortii, lilac, feathered purple.
Tommasinianus, lavender.	
vernus, white to purple.	
versicolor, purple striped.	

Crown Imperials.—See FRITILLARIA.

Chapter XXIV.—Cyclamens.

THESE are undoubtedly amongst the most interesting plants that we can grow in our gardens. The hardy species have not the size of those which are so largely cultivated in pots in every greenhouse, but in their marked refinement, the charming leafage, the quaint elegance of the flowers, and in their fragrance, they possess recommendations entitling them to all the attention it is possible to accord. The old-fashioned *Cyclamen Persicum* was decidedly perfumed, and while some of the modern varieties have this attribute, it is in a much less pronounced form, having been worked out in the process of evolution. This is regrettable, as fragrance in any flower must enhance its interest and charm.

The hardy species and varieties form delightful colonies in the rock garden, and those especially which bloom very early in the year are practically indispensable, as their places cannot be filled by any other kind of plants that will flourish in our gardens. They may be used in association with various plants, but much care is necessary in this direction, as the foliage of the *Cyclamens* alone is an ornament and must on no account be smothered by coarser growing subjects.

Selections of *Cyclamens*.

For all practical purposes the greenhouse section is confined to *C. Persicum* in considerable variety, including the normal as well as the large-flowered form, usually designated *grandiflorum* because it has bolder blooms. In the former division we have plenty of range as regards colour and superbly marbled leafage, while in the latter we have glorious flowers, but less conspicuously beautiful foliage. Almost all our leading houses offer named sorts, and no particularly useful purpose would be served by their enumeration here. Excellent results may be secured by purchasing mixed seeds* (keeping the two divisions separate, of course), as these are generally saved from the finest colours.

Hardy *Cyclamens*.

<i>Atkinsii</i> , purple and white.	<i>Neapolitanum</i> , red and white.
<i>Coum</i> , purple.	<i>hederifolium</i> , purple.
<i>Europeum</i> , reddish purple.	<i>repandum</i> , crimson.
<i>Ibericum</i> , red.	<i>vernum</i> , dark red.

* A valuable practical illustration dealing with *Cyclamen* propagation will be found on page 144 of "Pictorial Practical Gardening."

Chapter XXV.—Daffodils.

Classification and Selection.

THE month of April is the month of Daffodils as far as outdoor gardening is concerned, and much difficulty would be experienced in

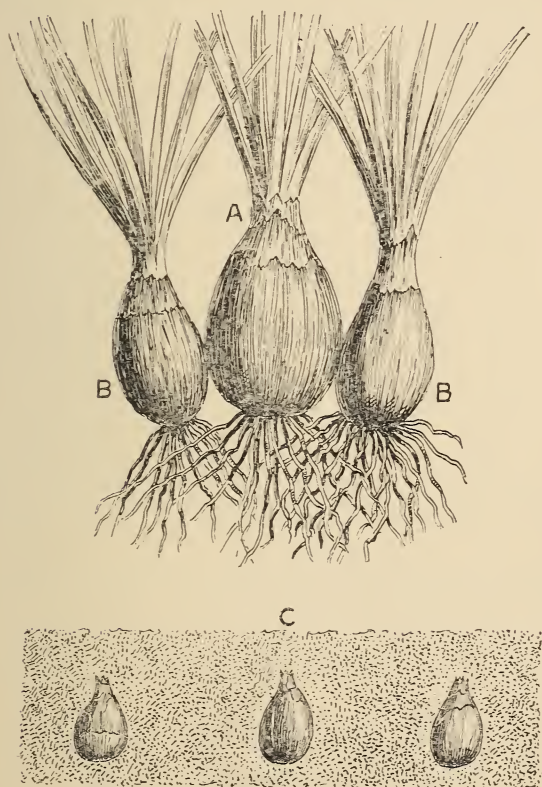


FIG. 21.—HOW TO DIVIDE DAFFODILS.

- A, parent bulb of Sir Watkin.
 B, offsets two years from planting.
 C, parent and offsets divided and planted.

finding any garden worthy the name in which the golden flower is not represented.

Apart from considerations of garden adornment, Daffodils have a value for decorative purposes indoors, where, if given fresh water each day, they last for a week, or even more, in fine condition. Of course, when they are put into rooms whose atmosphere is laden with the fumes of gas the blooms are much shorter lived.

Classification is the order of the day amongst all flowers, and fortunately with *Narcissi* the dividing lines are so sharply defined that they are easily understood. Daffodils in this respect differ substantially from other flowers, in whose divisions the classifiers themselves have the utmost difficulty in finding the points.

The separation of the Daffodils into sections is governed by easy natural laws into large, medium, and small trumpet varieties. The botanist would not express himself in such terms as these, but would say *Magni-Coronati*, *Medio-Coronati*, and *Parvi-Coronati*, respectively. Happily, these terms are readily Anglicised, and the average Board school youth, in the profundity of his Latin knowledge, would be readily equal to the task. To illustrate the three sections in the order given, *Emperor*, *Sir Watkin*, and *poeticus* may be mentioned.

The variations in form amongst Daffodils are so great that subsections might be originated; indeed, some attempt has been made in this direction, but except where the governing factor has been botanical success has not been great. Were it not for the varied sizes and shapes, the popularity of the Daffodil would soon start on the down grade, for the range of colouration is limited. There are yellows in varying shades, white, and in some of the small and medium cupped flowers rich orange and red.

It would be comparatively simple to secure from two dozen judiciously selected varieties practically all the tones of colour, unless one sought for infinitesimal differences; but were one bound down in such a way as this, the loss in form and size would be so great that, except for the smallest gardens, the collection would be incomplete.

Happily, too, for the maintenance of interest in the *Narcissus* family, there is a beautiful latitude in price. In fact, there are indications that the thirst for unique varieties, as in Orchids of the present day and the Tulip mania of a century or so back, is growing, and that the enthusiast is prepared to pay any amount provided that he can get something which his neighbour does not possess.

Before making his selections the would-be champion should examine his bank book and decide to what limits he can go. We can find plenty of varieties ranging from 12 to 18 guineas a bulb; we can go still farther and pay 50 guineas for some highly extolled novelty, or we can have 1,000 sound flowering bulbs for as small a sum as one and a half guinea. "Common!" someone may say. Yes; but if planted in the grass in the wild garden or the woodland they will make a lovely display.

One might regard the purchase of 20-guinea bulbs as an investment, but with men like the Rev. G. H. Engleheart at work it

is precarious, as by the time one has raised a stock to give him cent. per cent. interest, this genius in Daffodil development may have raised something infinitely superior, and the gold mine turn out a loss.

Selections of Large Trumpet Varieties.

The factor governing the inclusion of any variety in this section is that the corona, crown, or trumpet—call it which you will—is as long as, or longer than, the segments of the perianth. Five subsections are readily instituted, namely, (1) *Bulbocodium*, which is very distinct in having a trumpet that completely overshadows the segments of the perianth; (2) yellow flowered varieties; (3) bicolor varieties; (4) sulphur and white varieties; and (5) double varieties.

Bulbocodium—*Hoop Petticoat*.—The type variety of this section is pure yellow, and there are sulphur, white, and yellow forms, all ranging in height from 4 to 6 inches, and all particularly effective for pot culture. The best are the type, *citrinus*, and *monophylla*.

Yellow Trumpets.—A very handsome division, comprising some of the noblest Daffodils of our gardens.

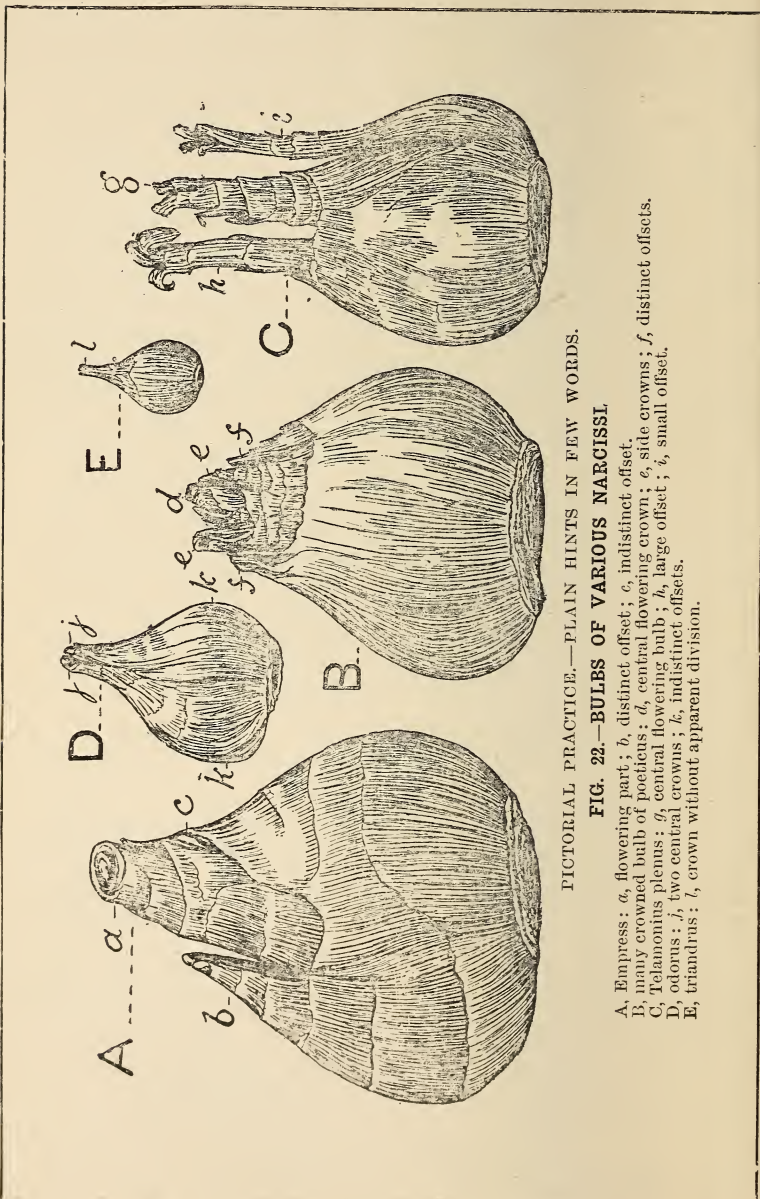
<i>abscissus</i> .	<i>major</i> .
<i>Alma</i> (<i>see p. 76</i>).	<i>maximus</i> .
<i>Ard Righ</i> .	<i>minimus</i> .
<i>Captain Nelson</i> .	<i>minor</i> .
<i>cyclamineus</i> .	<i>M. J. Berkeley</i> .
<i>c. major</i> .	<i>nanus</i> .
<i>Emperor</i> .	<i>obvallaris</i> .
<i>Glory of Leyden</i> .	<i>Pseudo Narcissus</i>
<i>Golden Spur</i> .	(<i>Lent Lily</i>).
<i>Henry Irving</i> .	<i>P. R. Barr</i> .
<i>Johnstoni Queen of Spain</i> .	<i>spurius</i> .

Abscissus has sulphur segments and a yellow trumpet, but its chief value is in its late flowering and its ready adaptability to culture in grass.

Narcissus cyclamineus and its variety *major* are amongst the gems of the family. They are somewhat difficult to establish, but are worth any trouble. If a semi-shaded situation at the foot of a rockery can be afforded, and the soil is mainly good loam, with some leaf mould and sand, disappointment is not very likely to accrue.

Bicolor Varieties.—This division is peculiarly rich in fine varieties, whose period of flowering is very extended. The trumpet may be any shade of yellow, and the segments of the perianth pure white, or as nearly so as possible.

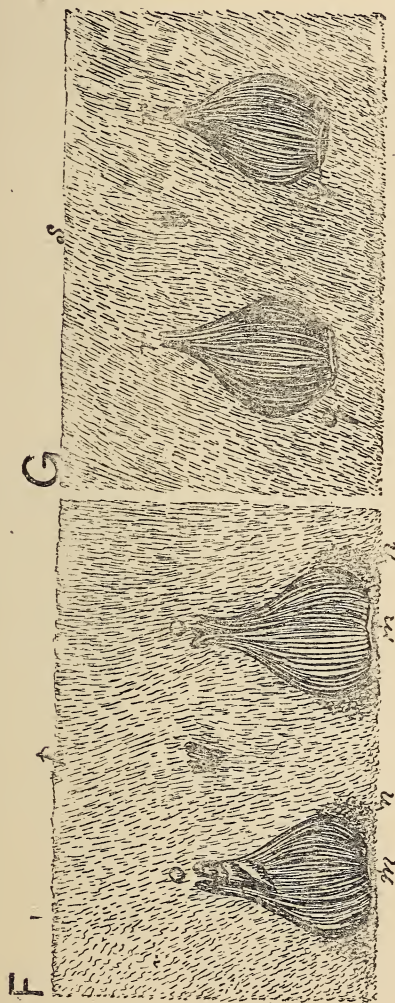
<i>Cygnets</i> (<i>see p. 77</i>).	<i>Madame Plomp</i> .
<i>Dean Herbert</i> .	<i>Mrs. Walter Ware</i> .
<i>Empress</i> .	<i>Mrs. Morland Crossfield</i> .
<i>Grandee</i> (late).	
<i>Horsefieldii</i> (early).	<i>princeps</i> .
<i>J. B. M. Camm</i> .	<i>Scoticus</i> .
<i>John Davidson</i> .	<i>Victoria</i> .



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 22.—BULBS OF VARIOUS NARCISSI

A, Empress: *a*, flowering part; *b*, distinct offset; *c*, indistinct offset.
 B, many crowned bulb of poeitiens: *d*, central flowering crown; *e*, side crowns; *f*, distinct offsets.
 C, Telamonius plennis: *g*, central flowering bulb; *h*, large offset; *i*, small offset.
 D, odoratus: *j*, two central crowns; *k*, indistinct offsets.
 E, triandrus: *l*, crown without apparent division.

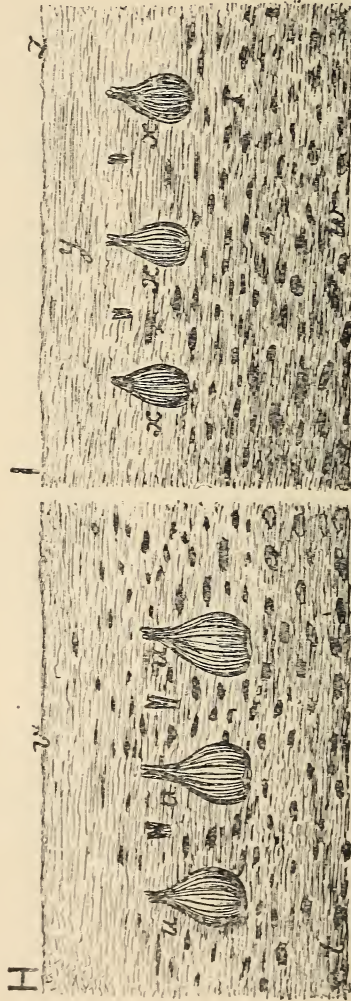


PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 23.—DEPTHS OF PLANTING VARIOUS DAFFODILS.

F, section of soil with bulbs of the largest size, such as Emperor, Empress, Golden Spur, and spiritus, 6 inches deep: *m*, base of bulb; *n*, sand; *o*, crown of bulb; *p*, surface of soil.

G, bulbs of the second size, such as obvallaris, Incomparabilis, poeticus, Barrii, and Leedsii, 5 inches deep: *r*, crown; *s*, surface.



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 24.—DEPTHS OF PLANTING VARIOUS NARCISSEI.

H, bulbs of about 1 inch circumference, such as odorus, 4 inches deep : *u*, soil ; *v*, bulbs ; *w*, surface.
 I, the smallest bulbs, such as *Balbocodium* and *transrus*, 3 inches deep : *x*, soil ; *y*, bulbs ; *z*, surface.

Sulphur and White Varieties.—The characteristic feature of this division is refinement. Many of the varieties carry the flowers in a drooping manner, and are very graceful. They can scarcely be termed suitable for town gardens, as their exquisite delicacy of colour renders them very liable to become soiled by the impurities of the atmosphere. In the country, where their beauty is unlikely to be marred, they are superb.

albicans.	Mrs. J. B. M. Camm.
cernuus.	Mrs. Vincent.
C. W. Cowan.	pallidus precox.
L'Innocence.	tortuosus.
Madame de Graaff.	W. P. Milner.
moschatus.	William Goldring.

Double Varieties.—The large trumpeted section of the Narcissus family does not afford many double varieties. The most valuable is the common double Daffodil, *N. Telamonius plenus*, which is unexcelled for naturalisation in grass, and is one of the most satisfactory for pot culture.

capax plenus.	plenissimus.
cernuus plenus.	Scoticus plenus.
minor plenus.	Telamonius plenus.

Large Trumpet Daffodils for Pots.—Broadly speaking, all the varieties that have been enumerated succeed under pot culture as long as this is understood to mean very gentle advancement into flower. Where, however, decided measures are to be adopted to induce early flowering, those varieties carrying the bud very high up towards the neck in the dormant bulbs will be found the most satisfactory. As a single variety possessing this peculiarity in a marked degree, the beautiful bicolor *Victoria* may be noted, and as a double the old *Telamonius plenus*. Many complaints of Daffodils failing under forcing may be traced to the fact that unsuitable varieties have been chosen, and no regard has been had for the rule of guidance provided in the position of the flower in the bulb.

The Incomparabilis Section.—The governing characteristics of this most charming section is that the corona or crown shall be half as long as the segments of the perianth. Some modification of this standard is observable in a few varieties, in which the cup is approximately three-quarters the length of the perianth segments.

The labours of the hybridist in this division have been crowned by some remarkable results, Mr. Engleheart particularly having given us some hybrids and secondary hybrids of the highest excellence. These efforts have not been directed so much to increasing the bulk of the flower as to improving its contour and substance, and at the same time enriching the colour. As typifying these points the brilliant *Lucifer* may be mentioned. It has elegance of form, richness of colour, and such substance as will



FIG. 25. - NARCISSUS ALMA.

(See page 71.)



FIG. 26.—NARCISSUS CYGNET.

(See page 71.)

allow it to be kept fresh in water about twice as long as any other variety.

Contrary to general supposition, which accords specific rank to *Incomparabilis*, this is really of hybrid origin, the parentage, as in the *Barrii* section, to which attention will presently be called, being yellow trumpet Daffodils and *Narcissus poeticus*.

Selection of Incomparabilis varieties.

*Autocrat.	*Queen Bess (very early).
*Beauty.	Queen Sophia.
C. J. Backhouse.	semi-partitus.
Commander.	*Sir Watkin (the noblest of the section).
*Cynosure.	*Stella.
George Nicholson.	*Stella superba.
*Gwyther.	Strongbow (<i>see p. 79</i>).
*King of the Netherlands.	*Titan.
Mabel Cowan (late).	
Princess Mary.	

From the vigour of habit which enables them to carry their flowers on long, stout stems, and the beauty of their colouration, those marked * are peculiarly adapted for naturalisation in grass and for massing in nursery beds for cutting. For the former purpose, too, the subjoined doubles are suitable, though they have scarcely the grace of the singles.

Double forms of Incomparabilis.

Butter and Eggs.	Eggs and Bacon (Orange Phoenix).
Codlins and Cream (Sulphur Phoenix).	Golden Phoenix (very fine).

The Leedsii Section. — Belonging to the botanical division known as *medio-coronati*, and having similar distinguishing characteristics as to size as the *Incomparabilis*, the *Leedsii* varieties must have the corona or cup either pure white or soft lemon, passing to white with age. This section is artificial, having white trumpet Daffodils and *poeticus* as its parents. If the entire family be considered in sections, each complete in itself, it will be seen that in the *Leedsii* lies the essence of refinement. That individuals from each might be chosen against which no word could be raised none will dispute, but the *Leedsii* division may be regarded as a whole, and no really coarse member will be discovered, though some will, of course, be more refined than others.

Selection of Leedsii varieties.

amabilis.	Madge Matthew.
Beatrice.	*M. Magdaline de Graaff.
*Duchess of Brabant.	*Minnie Hume.
*Duchess of Westminster.	Modesty.
*Fanny Mason.	*Mrs. Langtry.
Gem.	Palmerston (late).
*Grand Duchess (early).	Princess of Wales.
*Katherine Spurrell.	

* See note at foot of *Incomparabilis*.



FIG. 27.—NARCISSUS STRONGBOW
(See page 78.)

The Barrii Section.—The relationship between this section and *Incomparabilis* is intimate, as both are of the same origin, but the distinguishing characters show a marked difference. To be a *Barrii* the segments of the perianth must be twice or more the length of the short, expanded corona or crown.

If this division were limited to one variety only, and this was the now comparatively aged *conspicuus*, it might still be said to be one of the most important. For massing in the border, the bed, or in grass, this variety has no superior, while for cutting it is superb. Happily, too, it is so low in price that it is within the means of everyone.

Selection of Barrii varieties.

<i>conspicuus</i> .	Miriam Barton.
Crown Prince.	Mrs. C. Bowley.
Cupid (very late).	Orphée.
Flora Wilson.	Sensation.
Maurice Vilmorin.	

It may be noted in respect of the *Incomparabilis*, *Leedsii*, and *Barrii* sections that the colour, especially of the margin of the corona, varies with the period of flowering and with the age of the flower. For example, richly edged varieties under pot culture are apt to come slightly paler under the unnatural conditions of growth. Again, many of these lose colour rapidly under the fierce rays of the sun, and for cutting should be secured at about the three-quarter expanded state of the bud, when all the intensity is retained without loss to either the size or the substance of the bloom.

The Humei Section.—To all intents and purposes this section is limited to two varieties, whose flowers are of a pronouncedly nodding character. They make up in interest and charm, both for border culture and naturalisation, what the section lacks in numbers.

Hume's concolor.

Hume's Giant.

Selection of Backhousei Varieties.—This is a comparatively small section, but one whose marked characteristic—a dwarfed, stout, trumpet shaped corona—makes it not only very distinct but also very desirable.

Backhousei.
Border Maid.
Joseph Lakin.

William Wilks.
Wolley Dod.

Selection of Nelsoni Varieties.—The segments of the perianth in this section are of much substance and pure white, while the corona is somewhat goblet shaped, and usually of great beauty. Every variety is suitable for any form of outdoor culture,

and for growing in pots their striking though refined character makes them very desirable.

aurantius.	pulchellus.
major.	Stanley.
Mrs. Backhouse.	William Backhouse.

Selection of Bernardi Varieties.—This section makes up in beauty and interest what it lacks in numbers. Like many of our beautiful Narcissi the type comes from the Pyrenees, where it is found as a natural hybrid, and it was the veteran Peter Barr who proved the parentage to be *N. poeticus* and *N. abscissus*. Needless to say, the flower is of the most refined character.

Bernardi.	Fire Glow (new and expensive).
H. E. Buxton.	

Selection of tridymus Varieties.—From the foregoing section that of *tridymus* differs in many respects, but the distinction is now raised because it is a garden instead of a natural hybrid. The parents were a large trumpet variety and a form of *Narcissus Tazetta* (*Polyanthus Narcissus*), and from the latter it inherits the propensity to produce two or three flowered scapes and a sweet perfume.

A. Rawson.	St. Patrick (expensive).
Cloth of Gold (expensive).	S. A. de Graaff.
Miss White.	The Twins (new and expensive).

Selection of triandrus Varieties.—The popular name that has been accorded to these Daffodils is Angels' Tears, and its peculiar appropriateness is not fully realised until the delightful flowers are seen in some congenial spot whose soil is gritty loam, well drained and moderately heavily shaded. The plants rarely exceed 7 inches in height, and the mode of carrying the flowers on the stem has given rise to another favourite appellation—*Cyclamen* flowered *Narcissus*.

albus.	concolor.
calathinus.	pulchellus.

Selection of odorus Varieties.—In this small section we find the fragrant Jonquils, whose flowers sell in their tens of thousands in the big markets of the country. They may be planted in clumps in borders, or cultivated in pots, but the ideal place is in the grass towards the margins of streams or lakes, where their Rush-like leafage makes them singularly appropriate, apart from the charming yellow blooms.

odorus (the Campernelle Jonquil).	odorus plenus.
heminalis rugulosus.	Campernelle plenus (rare and expensive).

Rush-leaved Daffodils.—Apart from the Jonquils, there are at least three Rush-leaved Daffodils that are very charming. They

are scarcely suitable for naturalisation, however, as the flowers are very small; indeed, *juncifolius* is best in pots; it grows about 4 inches in height, and is effective in 3- or 4-inch pots. *Gracilis* exceeds 1 foot in height, and produces three or five flowered scapes, which are charming in pots or in a suitable position in the flower

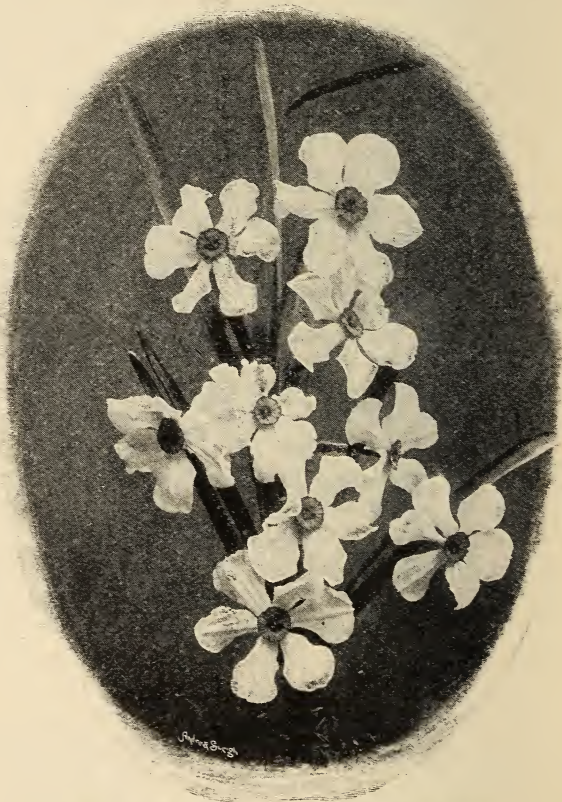


FIG. 28.—NARCISSUS POETICUS ORNATUS.

(See page 83.)

garden. The blooms are very late in expanding. The slender straw coloured *Daffodil tenuior* grows about 9 inches high, and carries several small flowers on a stem. The first named of this trio belongs to the *Medio-coronati*, and the second and third named to the *Parvi-coronati* section, which is now to be dealt with.

The True Narcissi.—To the section distinguished by Baker as *Parvi-coronati* belongs the distinction of having within its fold

the small crowned Daffodils, or true *Narcissi*, which is typified in *poeticus*. The governing characteristic is that the segments of the perianth shall be more than twice as long as the crown or corona, which is usually very flattened or expanded.

Selection of Burbidgei Varieties.—The fanciful name of *Star Narcissi* has been given to the several varieties of the *Burbidgei* section, whose origin is due to a cross between *Incomparabilis* and *poeticus*. They are extremely free flowering, and their graceful habit makes them admirable for every form of culture to which Daffodils are subjected. Again, they are very valuable for all purposes of decoration, in which respect they resemble the forms of *poeticus*.

Burbidgei	John Bain.
Agnes Barr.	Little Dirk.
Baroness Heath.	Model.
Ellen Barr.	The Pet.
Falstaff.	Vanessa.

Selection of poeticus Varieties.—If one were able to take a plebiscite of the Daffodil lovers throughout the country, including those who buy their penny and twopenny bunches of flowers, it is more than probable that the place of honour would be accorded to the chaste *Poet's Narcissus*, which is beloved of everybody. Make a judicious selection, and you have one of the finest Daffodils for forcing that it is possible to procure; grow them by hundreds in the garden and by thousands in the grass of the woodland, and their beautiful flowers will never fatigue the eye. *Narcissus poeticus* divides naturally into early and late flowering sections, and the members of the former only are amenable to forcing treatment, for which the finest of all is *ornatus*.

Early:

<i>Almira grandiflorus.</i>	<i>precox grandiflorus.</i>
<i>ornatus (see p. 82).</i>	<i>poetarum.</i>

Late.

Marvel.	<i>poeticus</i> of Linnaeus.
<i>poeticus</i> (the old Pheasant's Eye).	<i>Verbanensis.</i>

N. poeticus plenus is usually called the *Gardenia flowered Narcissus*, alike for its fragrance and the build of the flowers. Unfortunately, the buds are apt to come blind, two of the things predisposing to this being late planting and a very dry, hot position.

Selection of Tazetta.—From a garden aspect, the *Tazetta* section—or, as it is almost invariably termed, the *Polyanthus* section—owes its popularity to Dutch raised varieties, whose value lies in their adaptability to pot culture. The following are, however, thoroughly worthy of inclusion:—

<i>Hermione citrina.</i>	<i>intermedius major.</i>
<i>Hermione Mediterranea.</i>	<i>intermedius Sunset.</i>

Dutch Varieties.

Bathurst.	Maestro.
Bazelman Major.	Paper White and its
Double Roman.	varieties.
Gloriosa.	Queen of the Netherlands.
Grand Monarque.	Soleil d'Or.
Her Majesty.	States General.
Jaune Supreme.	White Pearl.

The most useful of these for forcing are Paper White, in two or three varieties, and Double Roman, all pure white and extremely floriferous.

Interesting Small-cupped Daffodils.—In addition to those to which attention has been called, there are several species that are extremely interesting, though they may not possess high merit as florist's flowers. Biflorus, the Primrose Peerless Daffodil, is well known and much admired, as also are Jonquilla and its double form, both of which are delightfully fragrant. The Jonquils are more useful for pot culture than for outdoors, where, if planted, they must have a warm position, in which they can receive winter protection. *Schizanthus orientalis* is bunch flowered, and grows 14 inches in height; while the rare little *serotinus* carries its flowers on slender stems in autumn.

Rare and Expensive Daffodils.

Except in occasional instances, the rarer varieties have been excluded from the foregoing selections, as the stock being very limited makes them exceedingly expensive to procure. Many of these have been raised by the Rev. G. H. Engleheart, Mr. J. W. Barr, the Rev. Eugene Bourne, and Mr. Backhouse; while a few have come to us from Holland. To those who aspire to the dignity of being amongst the foremost specialists in Daffodil land some of the novelties are essential, but it must be understood that the purse should have long strings if half a dozen or a dozen are wanted.

There can be no question as to the magnificence of such as Peter Barr, Weardale Perfection, Monarch, Big Ben, Lord Roberts, Duke of Bedford, and King Alfred; or of the striking beauty of Albatross, Border Maid, Cassandra, Una, Egret, Lucifer, Maggie May, Sceptre, Seagull, and White Queen, but one bulb of each of the seventeen enumerated would involve an expenditure of upwards of 150 guineas at the prices quoted in Barr's catalogue. The superb white Ajax Peter Barr heads the list with 50 guineas, which must surely be a record for a single Daffodil bulb, in this or any other country.

Abundant and Cheap Daffodils.

Just as there are Daffodils whose cost is so great as to allow of their culture only by the favoured few, so are there

Daffodils which are so cheap that they come within the scope of anyone having a garden. But strictly speaking, it is not for the home garden, often of severely limited extent, that low priced varieties are required, because in this case the restricted numbers necessary do not involve a great outlay, except under special circumstances. It is those who wish to furnish areas of grass in lawns, wild gardens, woodland walks, and grassy meadows, demanding thousands of bulbs, that look for those which will make the best display for the lowest initial cost. Some excellent varieties are:—

Barrii conspicuus.	Henry Irving.
Johnstoni Queen of Spain.	odorus.
pallidus precox.	princeps.
Horsefieldii.	Telamonius plenus
poeticus.	John Bain.
poeticus ornatus.	Emperor.
obvallaris.	Palmerston.
Sir Watkin.	abscissus.
Burbidgei.	Stella.
	W. P. Milner.

Daffodils for Rock Gardens.

Broadly speaking, any Daffodil that flourishes in the border will thrive in the rock garden, but the wise worker invariably cuts his coat according to his cloth, and rather selects his varieties according to his rockwork. In rock gardens of considerable extent, such as are found in a few places, situations can be found for representatives of the several sections of the Narcissus family, but in small rockeries only those that make low growth, and will therefore be in harmony with their neighbours, ought to be chosen. It will frequently be found that varieties which make little or no progress in the general border will flourish amazingly in the rockery, for the simple reason that here a special soil may be provided if desirable, and a position can be chosen that ensures partial shelter from the sun. Again, in rockeries the perfection of drainage is readily ensured, and protective material can be applied in winter if necessary. Some of the best for rockwork are:—

cyclamineus.	nanus.
cyclamineus major.	Bulbocodium (Hoop Petticoat) in variety.
juncifolius.	triandrus albus (Angel's Tears).
The Sweet Scented Jonquil.	Macleaii.
minor.	moschatus
minimus.	

Daffodils for Pots.

One occasionally hears it said that the varieties of Daffodils required for pot culture must be chosen with the greatest care, but as a matter of fact any sort one likes to put in pots and treat properly will grow and flower satisfactorily.

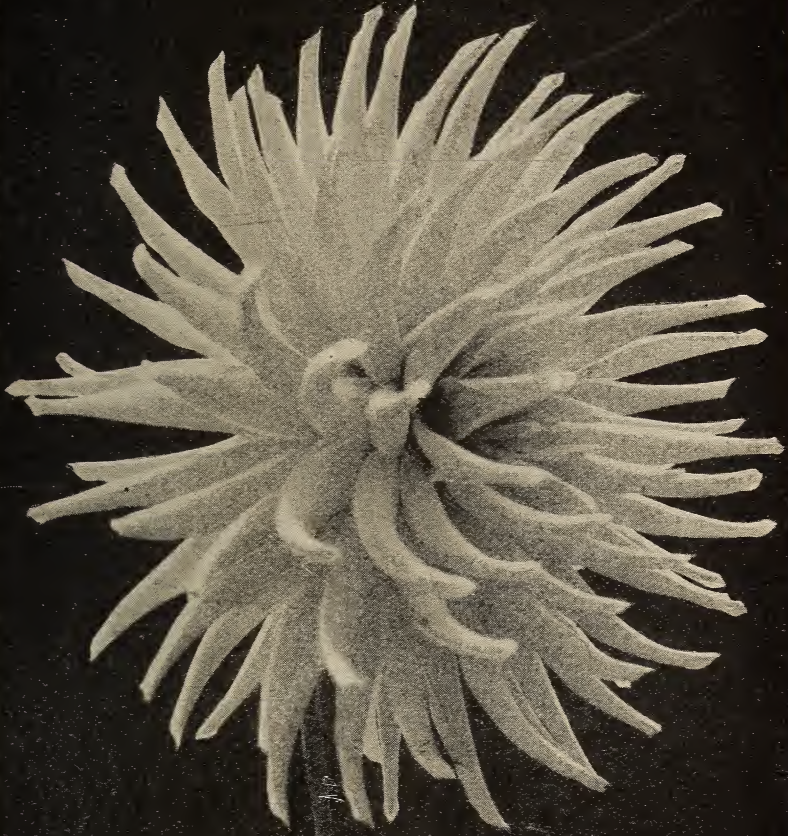
Chapter XXVI.—Dahlias.

WE hear the hypercritical person saying that it is quite wrong to include Dahlias in this series of articles, as their roots are not bulbs at all, but tubers. This is, of course, perfectly true, but it is also beyond refutation that to the amateur the differences between bulbs, tubers, and corms are hazily understood, and those who do comprehend them admit that it is the flowers they want, and whether they are produced from this form of root or that does not make an iota of difference. The fact that the portion of the stem of their Dahlias which is buried beneath the soil swells up and is thenceforth called a tuber has small interest to them in comparison with the best methods to induce the plants to bring flowers to perfection, either for their own enjoyment in the garden or for exhibition.

Both as an exhibition and a garden flower the Dahlia has seen many changes, and has probably fluctuated more in general esteem than any of our hardy or half-hardy plants. During the days of the rage for formality in the garden, as in everything else, the Show and Fancy Dahlias had an extraordinary vogue, and there were gatherings in their honour from one end of the country to the other. Then came the inevitable change in fashion, and the supremacy of the Dahlia had a rude shaking. Again there came the rise and the fall, until now we find the family at a height of popularity above which it is not likely to rise very much, and from which it is scarcely probable that it will fall.

It may, we think, be safely said that the present position on a thoroughly firm basis is largely due to the development of the Cactus section, which provides a flower of brilliant beauty without the severe formality of the older florists' type. In it we have an essentially garden flower as well as an exhibition one; hence its high position in public esteem at the present day, when the demand for beauty in the garden is greater than it ever was before. To a smaller degree but still worthy of recognition in a good work, the popularity is owing to the inception of the charming "Fancy" singles which were raised in the first place by the late Mr. T. W. Girdlestone; they are floriferous, and there are several exquisite colours amongst them.

Purely for garden adornment, there are many people who hold to the opinion that it is impossible to find a section that can compete with the small Pompons, whose freedom of flowering is little short of marvellous. It is raised against them by their detractors that they are equally as formal as the Show and Fancy types; but



From a photo supplied by J. Stredwick and Son.

FIG. 29.—WHITE CACTUS DAHLIA EVA.

(See page 89.)



Photo : Cassell and Co., Ltd.

FIG. 30.—YELLOW CACTUS DAHLIA MRS. CASTLE.

(See page 90.)

while this cannot be disputed, it must be granted that their floriferousness takes off from the stiffness to a very large extent.

One can feel nothing but pleasure that every section has its adherents, as there is room in our gardens for them all, and it would be a thousand pities if either of them was allowed to die out. So long as they all have their keen partisans, so long will they be widely grown and highly appreciated. As to their value in the garden it were an impossibility to speak too generously, for from the middle of August until the end of September, and often much later, the gardens of England would be bare indeed did they not contain a considerable quantity of Dahlias.

Fortunately they are plants of the small as well as of the large garden, and many of us have seen blooms in the cottagers' enclosures that would in no sense have been out of place in any exhibition in the country. In numbers they could not have competed with those of a Walker, a Mortimer, a West, a Turner, or a Keynes, but individual examples there were whose inclusion in a stand from either of these sources would have brought no disgrace thereto.

Selections of Dahlias.

Twelve Show Varieties.

- Colonist, chocolate and fawn.
- Dr. Keynes, rich buff.
- Duchess of York, lemon, edged pink.
- J. T. West, yellow edged purple.
- John Walker, white.
- Maud Fellowes, pink, shaded purple.
- Mrs. Gladstone, pale blush.
- Mrs. Langtry, cream and crimson.
- R. T. Rawlings, clear yellow.
- Victor, dark maroon.
- William Powell, primrose.
- Wm. Rawlings, crimson purple.

Twelve Fancy Varieties.

- Buffalo Bill, buff, striped vermillion.
- Dorothy, fawn and maroon.
- Duchess of Albany, orange and crimson.
- Emin Pasha, yellow, striped crimson.
- Frank Pearce, rose, striped crimson.
- Goldsmith, yellow, striped crimson.

Fancy Varieties, continued.

- Matthew Campbell, buff and crimson.
- Mrs. J. Downie, orange and scarlet.
- Mrs. Saunders, yellow and white.
- Rev. J. B. M. Camm, yellow and red.
- T. W. Girdlestone, lilac, striped maroon.
- Watchman, yellow, striped crimson.

Twenty-four Cactus Varieties.

- Ajax, orange and buff.
- Alpha, white, flaked purple.
- Britannia, salmon, shaded apricot.
- Clara G. Stredwick, salmon, shaded yellow.
- Cornucopia, reddish salmon.
- Eva, white (*see p. 87*).
- Gabriel, crimson, tipped white.
- Galliard, crimson scarlet.
- Island Queen (*see p. 91*).
- J. H. Jackson, maroon.
- J. W. Wilkinson, rosy crimson.

Cactus Dahlias, continued.

- J. Weir Fife, purplish crimson.
 Lord Roberts, ivory white
 Mrs. Carter Page, deep crimson.
 Mrs. Castle, yellow (*see* p. 88).
 Mrs. Edward Mawley, clear yellow.
 Mrs. J. J. Crowe, canary yellow.
 Mrs. Winstanley, scarlet shading to yellow.
 P. W. Tulloch, salmon tinted purple.
 Prince of Yellows, deep yellow.
 Ringdove, pinkish fawn shaded white.
 Rosine, rose.
 Vesta, pink.
 Viscountess Sherbrooke, terra-cotta.

Twelve Pompon Varieties.

- Adelaide, blush edged lavender.
 Arthur West, rich crimson
 Bacchus, bright crimson scarlet.
 Daisy, salmon shaded amber.

Pompon Varieties, continued.

- Darkest of All, dark maroon.
 Donovan, white tipped lavender.
 Doris, silvery lilac.
 E. F. Junker, pale amber.
 Emily Hopper, yellow.
 George Brinckman, white.
 Nerissa, soft pink.
 Tommy Keith, cardinal tipped white.

Twelve Single Varieties.

- Alice Seale, crimson shaded scarlet.
 Aurora, yellow suffused orange.
 Beauty's Eyes, satiny lilac, crimson disc.
 Columbine, rose shaded orange.
 Demon, rich maroon.
 Girlie, cream edged red.
 Leslie Seale, lilac, crimson disc.
 Miss Roberts, clear yellow
 Polly Eccles, fawn, red disc.
 Robin Adair, petunia tipped white.
 The Bride, pure white.
 Victoria, crimson, white band.

The Cultivation of Dahlias.

In at least one respect the management of Dahlias differs materially from that of the greater number of plants that are grown in our gardens, inasmuch as it provides a distinct period of rest, when no attention whatever is called for from the owner. This extends from the time the stools are stored for the winter until the moment arrives for the propagation of fresh stock in the spring, or when the old stools are brought forth for utilisation again. To those who want the finest flowers one has no hesitation in recommending the practice of raising young plants every year, as they produce the best quality flowers for exhibition purposes. This seems to be the proper time for one to set about affording cultural directions.

Propagation. — There are at least two methods of increasing Dahlias, either of which may be adopted at will. The first to be considered, and undoubtedly the better of the two, is from cuttings taken in the spring. These are secured by bringing the stools from the store and placing them in some convenient position in a house, where they may be just covered with soil; this is



FIG. 31.—THE BEAUTIFUL MAUVE COLOURED CACTUS
DAHLIA ISLAND QUEEN.

(See page 89.)

kept moist, and with the warmth of the structure at that period of the year growths push quickly from many invisible eyes (more correctly buds), and these are taken as cuttings. Many growers staunchly advocate the discarding of the first shoots which are produced, on the ground that they are so sappy that good plants cannot be hoped for from them.

Some of the earliest growths are by no means gross, and will certainly give satisfactory results if they are properly looked after. If it can be seen that the shoot is sappy, throw it away; but if it is firm, retain and use it.

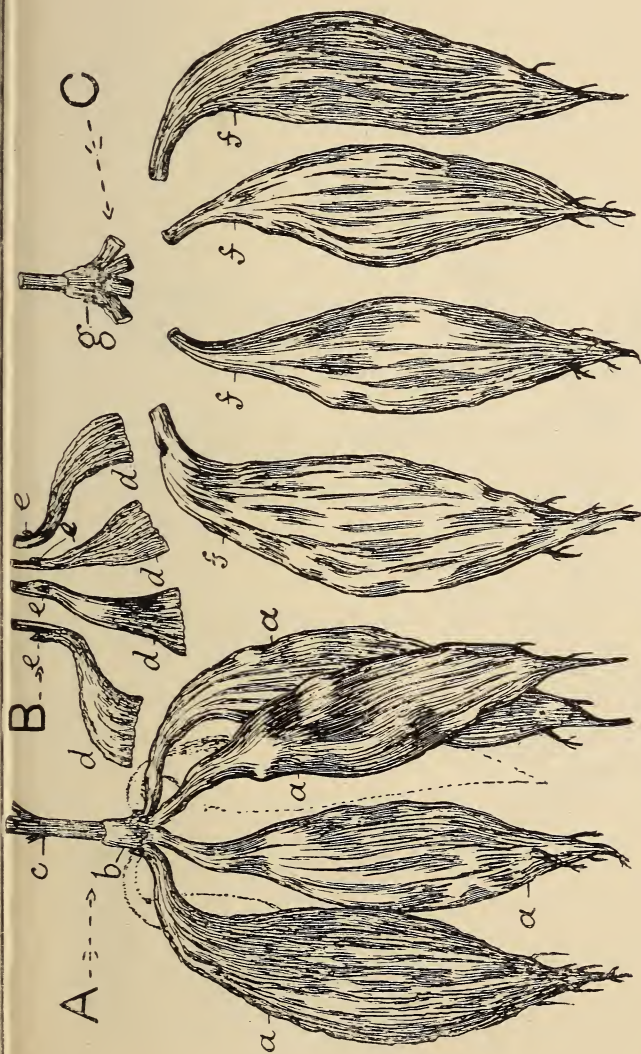
Each cutting should be given a small pot, using a fibrous loam, with a little coarse sand to ensure free passage of water. Very little drainage is necessary, and short stubby shoots cut squarely beneath a joint should be chosen. If the stools are placed in heat at the beginning of March, and the house is warm, growths 3 or 4 inches long will be produced in about ten or twelve days; or, if these do not appear suitable, they may be removed and the second crop of shoots secured.

After insertion, in the course of which it is imperative to see that the base of the cutting rests upon the base of the hole, the pots should be plunged in a bed that has a bottom heat of about 65°, with their tops as close as possible, without touching, to the glass above them. Neglect of the observance of this latter point generally results in the growth becoming leggy and weak, instead of remaining sturdy and strong. Shading must be employed in sunny weather, and while many recommend a permanent wash of whiting and milk, we prefer to have movable material, to be used when necessary and not at other times.

Plenty of air is essential at this stage, and the leaves must be lightly sprinkled when required. When it is seen that root action is well on the way, take the plants to a cooler structure and prepare to place them in 3-inch pots, using a compost of best yellow loam, leaf mould, the refuse from a Mushroom bed, and sand in proportion to the retentiveness of the loam. Exercise the utmost care not to break the tender roots, and when the work is completed stand the plants in a warm frame or a greenhouse, close to the glass in either case.

The second method by which increase can be effected is by division of the stools after these have been started, as suggested for the production of cuttings. The division must be done with a view to having a growth to each piece, and if potted singly and treated as advised for cuttings they will make good plants in due course.

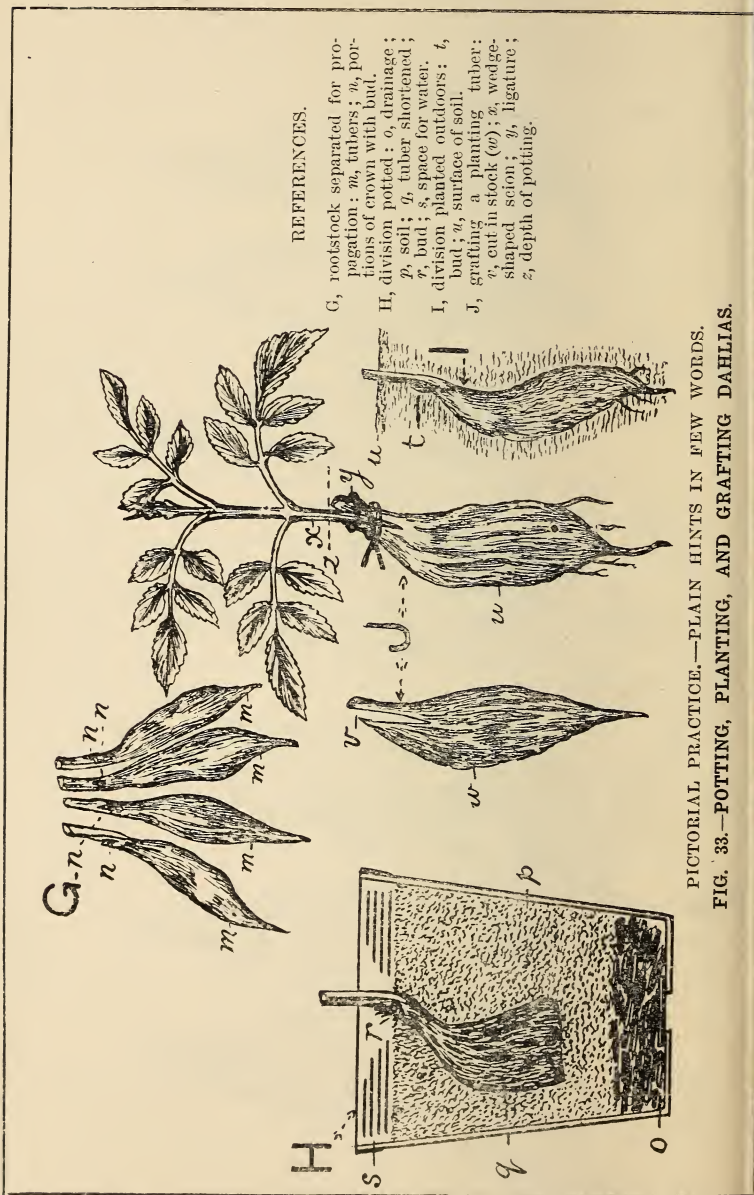
One other means by which plants may be raised is deserving of brief reference, as by its aid we secure our new varieties. This is from seeds, but the process is too tedious and has to be carried out on such an extensive scale if anything like good results are desired, that it is rather beyond the ken of the amateur, who is wise in leaving it to the professional Dahlia grower, from whom



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 32.—PROPAGATING DAHLIAS BY DIVISION.

A, fleshy rootstock; a, tuber-like roots; b, crown with buds; c, old stem.
 B, proper division through crown, each tuber with bud; d, tuber-like root; e, crown bud.
 C, improper division; f, tuber-like roots detached from crown; g, crown with buds.



REFERENCES.

- G, rootstock separated for propagation: *m*, tubers; *n*, portions of crown with bud.
- H, division potted: *o*, drainage; *p*, soil; *q*, tuber shortened; *r*, bud; *s*, space for water.
- I, division planted outdoors: *t*, bud; *u*, surface of soil.
- J, grafting a planting tuber: *v*, cut in stock (*w*); *x*, wedge-shaped scion; *y*, ligature; *z*, depth of potting.

PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.
 FIG. 33.—POTTING, PLANTING, AND GRAFTING DAHLIAS.

the few meritorious varieties (in comparison with the number raised) can always be procured. The seeds should be sown in a warm house in March, in boxes or pots according to convenience, potted singly as soon as they are large enough, and planted out when the weather is favourable in June. They are extremely floriferous, and from a good strain a gem may be occasionally secured.

Management of Young Plants.—With the placing in the 3-inch pots of the rooted cuttings the work of the grower is not finished, as it is now his object to keep the plants moving steadily forward until the period for planting comes along. It may be necessary to transfer the plants into larger pots, and if so a similar compost to that already recommended should be used. In any case, if they are in a greenhouse, get them into a frame as soon as possible, particularly if one with a little bottom heat is at command, because here it is an easy matter to keep the plants in progress, and ensure them retaining their hardness and stoutness by constantly admitting fresh air. To raise fine cuttings and then to spoil them by coddling, as there is no doubt is often done, is worse than a pity—it is folly—and must be guarded against by all possible means.

Planting Out.—The soil is best prepared some time in advance of planting, to allow the food that has been put into it to become amalgamated and to permit the ground to settle down. The best natural manure at command should be incorporated with the ground, working it where it is possible to do so into the second spit, and having an upper layer of pure loam, so as to prevent the roots coming in actual contact with the manure. To economise manure, the land should be prepared in stations 4 feet apart all ways, in order to allow each plant to have the fullest benefit of light and air.

The first thing to do is to insert the stake, and it must be one that is not only of good height but very strong, as from it all ties will be taken for the support of the branches. When the plants are approaching to full growth, it will be necessary to place about four other stakes in position, but this does not warrant the cultivator in having a weak central one. Then, when the proper time arrives, the plants must be put out, placing them comparatively close to the stake, and attaching a loose tie at once in case of a quickly rising heavy wind. Make the soil firm about the roots, but do not go so far as to stamp upon it, as people have been seen to do before now.

The object of placing the food in the second spit is to prevent the roots getting into it too soon, as they certainly will do if it is on the surface. Grossness of growth at all stages is undesirable, but particularly when the plants are very young, as it is difficult, if not impossible, to persuade them to grow out of it, and the blooms come with serious defects which render them quite unfit for exhibition purposes, and not of material value for the adornment of the garden. By the time the plants are

firmly established in the soil the roots will have found the special food, and the growths will be so numerous and so vigorous that they will be in a fit condition for its reception.

When the plants are in their most active state the amount of food that they call for is enormous, and their wants must be supplied or the results will not come up to our expectations or ambitions. In respect of the best kinds of food for Dahlias, one is not met with any serious difficulties, as the plants are sufficiently accommodating to appreciate practically anything that is good, provided it is afforded in reason and variety. To keep applying the same thing is certainly injudicious, as the plants tire of it, and do not derive the benefit that they should do.

The time of planting is a very important point, as upon it may rest the difference between success and failure. Let the fact that the Dahlia is a half-hardy plant be ever borne in mind, or in our haste to get the plants in their permanent quarters we may put them out before danger from late frosts is passed. The results of this practice are often disastrous, as it does not require a very hard frost to do irremediable damage. Early in June is the most general time, but even then a sharp look-out should be kept, so that if frost appear imminent protective material may be instantly placed about the plants. This close observation should be maintained until the third week of June at least, and ought really never to be relaxed.

Reducing the Growths.—One sometimes sees it recommended to retain all the growths a plant may produce, but it is rarely indeed that this policy is wise, as, even for garden decoration, the results are infinitely more satisfactory when a certain reduction is made. Pompon varieties differ so materially from the Show and Fancy sections that they may for a moment be left out of consideration. The ideal number of growths to retain when the grower has the exhibition of blooms as his primary object, is four for Show and Fancy sections, the same, or perhaps one more, for the beautiful Cactus varieties, seven for the singles, and practically all that are produced in the case of the Pompons. The reason that more shoots are retained in the two latter sections is simply because reduction spells size, and in neither of these is this by any means a recommendation on the exhibition table. The selected growths should be chosen well down on the main stem, and these again will demand pinching, but not until they have made substantial progress. After the secondary breaks are secured, all shoots springing from them must be rigidly removed.

Staking.—Hand in hand with the thinning must run the staking, and unless this is properly carried out it is useless to hope for the production of blooms sufficiently meritorious for placing upon the exhibition table. The constant swaying about to which the wind will inevitably subject them will either blow out the growths themselves, or so injure the flowers by bruising as to render them worthless. We have already got the principal support into position,

and round this must be arrayed other strong stakes, corresponding in number with the growths, each one being furnished with a support of its own. To these the shoots are attached, firmly, yet so freely as to permit the shoot to move about and expand as the plant attains age. If it should become necessary to remove one of the stakes when growth is well advanced, let the operation be carried out with the utmost care, and put the new support in the hole left by the removal of the first one. This obviates the probability of damage accruing.

Timing Blooms.—In this lies, to a very large degree, the cultivator's success in the exhibition arena, as unless he can manage this correctly he can never rely upon having his flowers in at the required time. It is one of the several operations in gardening that experience in a particular soil and district will teach, aided by the closest observation and persistent diary making, so as to have a record of progress from year to year. Until this experience has been gained (and the wise man will continue it afterwards) several buds in different stages should be chosen for retention, in order to guard, as far as possible, against an error. At this stage the greatest worry will arise from the prevalence of earwigs, whose faculty for selecting the finest buds upon which to exercise their power of destruction approaches to the miraculous. Of these mention will be made in due course.

Protecting Blooms.—Following hard upon the timing in importance, as regards exhibition produce, is the protection of the flowers as well from the effects of the weather as from the ravages of earwigs and other pests. It used to be a very common practice in some parts of the country, and probably still is in certain districts, to enclose each bud in a bag made of soft muslin, this being with a view to keeping earwigs at bay. But it is not this aspect of the case that will be dealt with at this juncture; it is rather the protection of the developed, or nearly so, bloom from atmospheric effects that must receive attention. The shades specially made and sold for this purpose are the best things to employ, and, though they may be rather expensive at the outset, they must be procured, and will, with reasonable care, last for a considerable period. Home-made contrivances are frequently utilised by growers, and will be found to answer admirably, provided they are properly constructed with knowledge of the form of the flower and the particular object in their use. Those made with canvas sides strained on to a wire frame are probably the most useful form to employ, but it should be regarded as essential that they have a movable cover, or one of glass and another of wood. The idea of thus providing two tops is to have at hand a dark or a light shade for use, according to discretion, as while some flowers bleach in the sunlight and others burn, still more demand brilliant light before their richest hues can be brought out; afterwards these, too, may require protection. Again, the protectors will perform a valuable service in the timing of the flowers, for when skilfully employed they will accelerate or retard a bloom to an appreciable degree. It

is usually desirable to have the shades in position some twelve or fifteen days prior to the date at which the flowers are required. The utmost care must be taken that the bloom does not move in the protector, or the outer florets will be ruined by the friction.

Dahlias for Garden Adornment.—The brilliant effects that can be produced in the garden by the different sections of the Dahlia warrant the gardener in according the best attention in his power to the plants. The miserable examples which are often seen are not worthy the name of Dahlias, and have little or no resemblance to thoroughly well grown plants. It is not to be supposed that the gardener with his multifarious duties, or the amateur with his varied loves and limited accommodation, can achieve the success that crowns the efforts of the specialist; nor would it be possible for either of these to imitate the elaborate details to which the enthusiast subjects his plants: each must work according to his conveniences, and it is quite certain that all the labour that can be given to the Dahlia quarters will be most generously repaid in the infinitely greater number of vastly superior flowers that the plants will produce.

As far as possible, the producer should adopt the suggestions that have already been laid down for the development of exhibition blooms, modifying the methods at any point where they are too advanced or the conveniences at command will not permit of their adoption. Many growers leave the stools in the ground from one year's end to the other, but the system has little to recommend it beyond its unquestioned simplicity. If the stools are well covered with ashes or other suitable protective material, they will pass unscathed through a winter of normal severity, and produce an abundance of flowers in the following year, but these will lack many things that go to the making of a really good Dahlia. When this system is adopted the grower should reduce the number of growths that push to about five, as these will bring almost as many blooms as a greater number, and they will certainly be of far better quality than when the plants are allowed to grow in the guise of a thicket. It will be necessary, too, to apply even more generous applications of liquid manure than when the plants are put in fresh land, as the roots of the plants in the previous season will have drawn out immense quantities of nutriment. With a view to aiding in the feeding, it will be found advantageous to remove a few inches of the top soil, putting in its place some rich compost, or failing this using the depression thus made as a saucer that will aid in conducting liquid nourishment directly down to the roots.

Those, and their name is legion, who replant the old stools every year may improve matters very considerably by the reduction of the number of growths, precisely as has been recommended in the foregoing paragraphs. The stools ought to be removed from the place of storage and put in slight warmth, so as to have them in active progress before they reach the open quarters. In other

respects the procedure may be on as nearly the lines laid down for exhibition plants as ways and means will allow. Another course may be followed, and with proper management it will give wonderfully fine returns. This is to divide the stools into single tubers, pot these in 5-inch pots of good compost, keep them in a warm house with the soil always just moist, and when the time for planting arrives put them out at a distance of 4 feet asunder in all directions. If the soil has been made rich in the manner suggested, and the plants are treated in all respects similarly to those from cuttings, they will give blooms of almost equal merit, that may be drawn upon for the show or be taken advantage of for garden adornment alone.

Dahlias in Pots.—One other phase of culture remains to be dealt with, and this is the practice of growing a few plants entirely in pots. Endeavours have been made of late years to popularise this mode of treatment, but it cannot be said that the results have proved very encouraging to the promoters. The fact is that Dahlias are essentially garden flowers, and, though a certain number of people may care to have some plants for flowering in their greenhouses, it is unlikely that they will ever have any great vogue for this purpose. From the specimens one sees occasionally, it is obvious that they resent in no slight manner the restricted area in which the roots are working, and it seems to be well-nigh impossible to keep the plants from becoming drawn and carrying thin, pale foliage that does not look as if it could do much service in the building up of fine blooms.

In setting out to grow these plants in pots, the general principles that govern their culture in the ordinary way may well be made to apply. That is to say, there must be the same care in propagating from firm cuttings in the spring, and the same incessant attention to the plants from the time that they pass out of the 3-inch pots in which the cuttings were inserted until they have produced their crop of flowers. Because they are growing in pots must not be taken as justifying forcing treatment, for this will be followed by almost instant collapse. Bring the plants gradually forward until they are practically at the point of flowering, when a very little persuasion may be resorted to if it be absolutely necessary; but even then it will be accompanied by a modicum of risk. Watering must at all periods be most carefully attended to, as it is imperative that the plants be kept constantly, though slowly, moving onwards. Needless to say, with such gross feeding plants as Dahlias, it will be essential to supply special food of the finest possible quality, and in quantities increasing with the age and vigour of the plants.

At all stages the plants must be kept as near to the roof glass of the structure in which they are growing as possible, so as to reduce to a minimum the probability of legginess. If the leaves are far from the glass, they become attenuated, and, as with other plants, cannot perform their important functions in an adequate

manner, with the natural consequence that the appearance of the plants and the quality of the flowers are seriously prejudiced.

Enemies of Dahlias.—There can be no two opinions as to what is the most inveterate enemy of exhibition Dahlias. It is the earwig, for it will spoil a bloom in one night, and that bloom, as has already been hinted, is sure to be the finest in the garden, especially when one is explaining to one's friends the reason why one's stand failed to carry off some coveted award. For a wiliness that is absolutely uncanny, commend us to the earwig. We place our traps with the utmost care, go round the plants after dark dealing out destruction to every earwig we can find, and retire to rest comfortably assuring ourselves that our blooms are safe until the morning, at any rate. But when morning comes our confidence in our ability to cope with the earwig is roughly shattered, for the one bloom needed to ensure success in the great class has gone to ruin. However, these things add sting to our attacks, and we start forth with renewed determination that when next the earwig comes in our way we will exterminate him root and branch. Trapping and hand picking are our only resources, and they must be persisted in until the blooms are actually on the exhibition table, when we may feel reasonably confident that the danger is passed. Some deluded individuals think that placing troughs of water all round the Dahlia quarters will ensure immunity from attack, but they overlook the fact that the earwig can and will fly, so that their labour is absolutely in vain.

As slugs want everything that the gardener most prizes, it is superfluous to say that they want the Dahlias, and if they can gain access to them when young they will destroy all chances of success in the show tent. Keep the surroundings of the plants scrupulously clean at all periods, as slugs want hiding places, and it should not be one of the duties of the grower to provide them by having rubbish and litter about the cherished plants. Beyond this, baiting with anything that will attract them and searching at night are the only remedies, or more correctly preventives, for there can be no redress when the plant is spoiled. Green fly will attack the plants at the tips of the shoots, but a pinch of snuff, some tobacco powder dusted upon them, and forcible evening sprayings with clear or soft-soapy water will generally prove efficacious. In all cases it is essential that our attacks be persistent, as intermittent attention is worse than useless by placing us in a position of false security.

Chapter XXVII.—Erythroniums.

POPULARLY known as Dog's Tooth Violets, these are most delightful bulbous rooted plants for the rock garden or the border of miscellaneous subjects in the flower, vegetable, or fruit gardens. They are not big growing by any means, and there is ever present a danger that they may be overwhelmed by their grosser neighbours unless care is taken that this does not occur. When once the bulbs have become firmly established—and no difficulty should be experienced in this direction—the growth will be sufficiently vigorous for the plants to take care of themselves. Like so many of our most charming bulbous plants, Erythroniums are admirably adapted for culture in the grass, provided this can remain uncut until the leafage has performed its proper functions.

Selection of Erythroniums.

Dens-canis, purple, pink, and white; there are several varieties, of which Japonicum and Sibiricum are probably the finest.
grandiflorum, yellow.

Hartwegii, yellow, early flowering.
Howellii, yellow.
Johnstonii, red and pink; very beautiful.
Nuttallianum, golden yellow.
revolutum Bolanderi, white.

Chapter XXVIII.—Eucharises.

No genus of bulbous plant with which we are acquainted offers so fine an opportunity to the successful cultivator for wagging a finger when pointing the moral at an unsuccessful brother. What passages of arms there are at meetings of gardeners' societies when Eucharis culture is the subject under discussion! Separate the wheat of common sense from the chaff of impassioned rhetoric, and it is found that the man who wields the water-pot holds the secret of success in his hand.

Eucharis flowers, like the poor, are always with us. They adorn the font, attend the wedding, and if we have been so fortunate as to make a few friends, it is probable some of these pure and fragrant flowers will go with us on our last journey to God's Acre.

Eucharis Lilies are stove plants, provided with large, deep green, broad-bladed leaves, and yielding tall spikes of lovely blooms usually twice a year. Three crops a year can be obtained from the same plants, but it is a sweating process, and ultimately ends in failure. Mellow loam, with a fourth part of peat, or leaf soil, and some coarse sand added, makes a suitable compost. Good drainage is absolutely essential. The size of pot used may vary with the taste or needs of the grower, but as a guide to the requirements of Eucharises, it may be said that six bulbs will find accommodation in a 10-inch pot. Never re-pot Eucharises except to save them from starvation; liquid manure and top-dressings will keep plants healthy for a good while after the pots have become well filled with roots.

After flowering, Eucharis should be rested by a reduction of the water supply, and a temperature 5° or 10° lower than that in which they have been growing; but it is necessary to add that "drying off" or "cool treatment" are alike productive of failure. The temperature for Eucharises should never fall below 60° .

The bugbear of Eucharis growers is the "mite," a tiny insect, *Rhizoglyphus echinopus* by name, which infests bulbs that have suffered from some error of treatment. The mites can be killed by soaking the bulbs for fifteen minutes in a mixture made of $\frac{1}{4}$ lb. of potassium sulphide dissolved in 3 gallons of water heated to 115° . After their bath, put the bulbs on a sunny shelf in the stove to dry, giving them no other shade than a sheet of thin paper affords. Pot the bulbs after three weeks of dry treatment, using small pots and sandy soil; plunge them where there is a moderate bottom heat, and plenty of moisture in the atmosphere, but of direct watering there must be none until both roots and leaves have made considerable progress.

Selection of Eucharises.

candida, white; very pretty, but smaller in all its parts than *grandiflora*.
grandiflora, white; in every way the best Eucharis. The Amazonica of most gardens is correctly *grandiflora*.

Burfordiensis and *Stevensi* are hybrids; the former has white flowers, and the latter has also white flowers, but with a distinct yellow corona.

Chapter XXIX.—Freesias.

RICH and varied as is the flora of South Africa, it is doubtful whether it contains a more beautiful, more fragrant, or more useful class of plants than the elegant Freesias. Not so very many years



Photo: Cassell and Co., Ltd.

FIG. 34.—FREESIA AUREA.

ago he was accounted a clever gardener who could grow and flower Freesias well year by year; but many amateurs soon found that strong heat was not at all necessary to secure the most satisfactory results. Failures with Freesias may generally be traced to one or both of two mistakes—namely, a too free use of water in the early stages of growth, and failure to fully appreciate the advantages of thoroughly drying and baking the bulbs.

Let us descend to details—the Freesias are worth it. Five- or

6-inch pots are quite large enough, and will accommodate ten or twelve bulbs. Place the bulbs 1 inch deep in a mixture of 2 parts loam, 1 part each of leaf soil and dried cow manure, with some sand added. Pot up the earliest batch in August, and continue the work at intervals according to the supply and demand. It is common to plunge the pots, but we succeed better without. If the soil is dry, sufficient water to just moisten it must be given before the operation of plunging is performed, but if it is moderately moist scarcely any water will be needed until growth is 3 or 4 inches high. At this stage a little more warmth may be given, and water will be needed frequently. Freesias have a strong dislike for a high temperature when growing, and any attempt to force them will end in failure. Provide the flower stems with a little support, but the lighter and more unobtrusive this is the better.

The next important point to consider is that of resting. Decrease the supply of water directly the flowers have faded, and when the leaves turn yellow cease watering. If in your greenhouse there is a shelf on which the summer sun shines with roasting force, then there need be no further search for an ideal spot for Freesias. In such a position they will dry and rest without any attention, and will be ready for potting about August

aurea, yellow (*see p. 103*).
 refracta, white and orange.
 refracta alba, white; the
 best of the Freesias.

refracta Leichtlini, prim-
 rose yellow, with orange
 blotch.

Chapter XXX.—Fritillarias.

HERE we have a family whose charms are such as grow steadily upon the cultivator, until beauty can be seen in every part of the flower. To the lover of the garish they will possess no attraction whatever, as theirs is a beauty that must be sought for. True, in the well-known Crown Imperials, with their tiered whorls of leaves and flowers, one has scarcely to look to see it, so striking is the habit of the plants; but in the majority we must perforce lift up the bloom—whose form is that of the head of a snake, and has given rise to the common name of Snake's Head Lily—to appreciate the charms that lie within, and which the plant is far too modest to show for itself.

The full charm of the Snake's Head is seen when the bulbs are planted in grass, among the blades of which the nodding blooms on their slender, arched pedicels, swaying in the gentlest breeze that blows, are indescribably delightful. Many sorts become naturalised, and form clumps of considerable extent in the course of a few years.



FIG. 35.—THE CROWN IMPERIAL
(FRITILLARIA IMPERIALIS).

Selection of Fritillarias.

armena, purple ; there are red and yellow varieties. aurea, yellow.

citrina, green.

Imperialis, yellow ; there are numerous varieties, including some with silver and gold variegated leafage. Six of the best are aurea marginata, argentea marginata, Aurora, Crown-upon-Crown, rubra, and Sulphurine.

latifolia, red.

lutea, yellow.

Meleagris, spotted purple ; several fine forms.

pallidiflora, pale yellow.

Persica, violet brown.

pubida, yellow.

Pyrenaica, purple.

recurva, orange scarlet ; this is very beautiful, but somewhat difficult to establish in many gardens.

Chapter XXXI.—Gladioli.

NOTWITHSTANDING the superb exhibits of these gorgeously beautiful flowers that we occasionally see at shows, it cannot be said that they are so extensively cultivated as might be wished. This seems to be especially the case in the South of England, for they are undoubtedly more frequently seen in the Midlands and in Scotland, where they are magnificently represented in many gardens.

Knowing how finely they thrive "across the Border," the inexperienced are prone to think that they will only succeed in the cooler climate which they there enjoy. That they like the soil and the climatal conditions none will dispute, but it is equally irrefutable that they will flourish almost, if not quite, everywhere in England, if their requirements are assiduously studied.

We find them in Cambridgeshire, in Somersetshire, and in the Isle of Thanet, and in each case they are as near to perfection as anyone need wish to see; these places are widely separated, and differ substantially in every respect, thus showing what can be done when the work is set about in a businesslike way, and with a determination to achieve success.

The *Gladiolus* family may be said, as far as general culture is concerned, to be divided into five sections, of which the principal is that known as the *Gandavensis*, which is said to have originated from *G. psittacinus* and *G. oppositiflorus*; this comprises many varieties of brilliant beauty, and some of them are very easily grown. Then there is the *Lemoinei* section, which is of hybrid origin, and contains some remarkable combinations of colours. From America we have received, though it was raised in Germany, another hybrid division named *Childsii*, after its introducer; the members of it are strong growing, and very handsome in suitable positions. In addition to these there are the *Nanceianus* section and the species with their varieties, several of which are invaluable. A few *Gladioli* are grown in pots, but the majority do not respond readily to this method of culture, and should be placed in the garden.

Selections of Gladioli.

Hybrids of Gandavensis.

Althea, orange red, flaked crimson, violet blotch.	Dalila, bright rose, blotched and striped white.
Baroness Burdett-Coutts, lilac, tinged rose purple.	Decima, rosy white, edged crimson.
Casilda, pale yellow, rosy red blotch.	Dora Craven, white, carmine blotch.
Colada, salmon red, white blotch.	Dr. Bailly, scarlet, blotched carmine on white ground.

Hybrids of Gandavensis (continued).

Ella, lilac, shaded rose, crimson blotch.	Iolanthe, reddish pink, lower segments feathered crimson.
Elvira, rose white, flaked white, centre saffron.	Lauretta, white, shaded pink, flaked rose.
Fiametta, rich rose salmon.	Martial, crimson, flaked scarlet.
Flambeau, orange red, edged crimson, white lines and blotch.	Phineas, carmine, white blotch.
Formosa, satin rose, carmine stripe, white blotch.	Pyramide, orange rose, centre amber.
Glaive de Feu, salmon rose, ivory white blotch.	Rosalind, pale rose, flaked crimson.
Grand Rouge, scarlet crimson.	Sorcerer, salmon red, striped and spotted maroon.
Hetty Dean, white, purple blotch.	
Iona, crimson, purple blotch, centre white.	

It should be understood that the newer varieties of *G. Gandavensis*, such as are utilised for exhibition purposes, are expensive, because the stock of corms is limited; those included in this selection provide very fine quality at a reasonable price.

Selection of Lemoinei.

Baron Joseph Hulot, deep violet blue.	Lamarck, crimson red, yellow stripes.
E. V. Halluck, pale yellow, crimson blotches.	M. Leveque, velvet crimson.
Eclipse, pale lilac, black blotches.	Marc Micheli, pale lilac, lower segments violet.
Ethiopie, violet red, blackish blotches.	Mephistopheles, cinnamon red, black and sulphur blotches.
General de Nansouty, blue, violet red blotches, yellow edges.	Rosa Bonheur, pale porcelain, purplish blue blotches.
Jane Dieulafoy, creamy white, maroon blotches.	Senateur Volland, blue, violet blotch, yellow stripe.

Selection of Childsii.

Adolphe Close, slate blue, mottled white and crimson.	Columbia, scarlet, flaked and spotted purple.
Ben Hur, brick red, spotted crimson.	Dr. Sellow, carmine rose, white bands.
Bessie Tanner, salmon rose, blotched white.	William Falconer, pink, mottled crimson.

Selection of Nanceianus Varieties.

This section is of the same origin as *G. Childsii*. Speaking of these two divisions, Mr. J. Burrell, Cambridge, who is one of the leading authorities on this genus, said: "For all practical purposes these (*Nanceianus*) and the *Childsii* might be bracketed together. They are both derived from the species *Saundersii*; they both

have its bad faults of only opening two or three flowers on the spike before the others fade, and have the same tendency of the flowers to face downwards. The Nanceianus have the better colours, but there are no whites or yellows yet in either section."



FIG. 36.—A VARIETY OF *GLADIOLUS GANDAVENSIS*.

Colonel Gillon, rose, large white blotch, purple dots.
 G. A. Kuyp, carmine red, blotched and pencilled purple on white.
 Georges Frick, crimson, blotched brown, pencilled white.

Peau Rouge, coppery salmon rose, marbled brown and yellow.
 President Chandon, vermilion, blotched sulphur yellow.
 Tsarine, lilac rose, carmine blotch, white edge.

Species and Hybrids of Gladioli.

Though these are comparatively numerous, it cannot be said that they possess any very material value as garden plants. An exception is seen in the beautiful white variety of the hybrid *G. Colvillei*, which is universally cultivated in pots, both under ordinary and forcing treatment; it is an invaluable plant for the purposes indicated, while it may also be utilised in the border if such be desired. Others that are of substantial assistance to the grower for pot culture are embodied in the subjoined list, and are marked with an asterisk :—

**Adonis*, orange scarlet,
white blotch.
atroviolacea, purple.
Brenchleyensis, brilliant
scarlet.
Byzantinus, rosy purple.
cardinalis, scarlet, flaked
white.
**Colvillei*, rose purple,
striped white.
**Colvillei The Bride*, white.
communis in variety.
**delicatissimus* (*Blushing
Bride*), white, rosy
crimson blotch.
**Fairy Queen*, rosy white,
excellent for forcing.
floribundus, citron.

insignis, reddish purple.
**Mary Anderson*, blush
white, flushed rose.
Mauve Beauty, pale lilac.
Non Plus Ultra, deep rose,
shaded scarlet.
oppositiflorus, white.
Prince Albert, deep salmon
rose.
psittacinus, yellow and
red.
Queen Victoria, deep red.
**Rosy Gem*, pale rose,
white blotch.
Saundersii, scarlet and
white.
**Salmon Queen*, salmon.

Gladioli for Bedding.

When it is not desired to grow the choicest of the hybrids for general bedding purposes, the following will be found of considerable value, as they produce bold flowers of distinct colours :—

Beethoven, delicate rose.
Brenchleyensis, brilliant
scarlet.
Cybele, satin rose, flamed
carmine.

Lord Byron, carmine,
blotched white.
Magnificent, white, flushed
carmine.
Walmer, glowing rosy
scarlet.

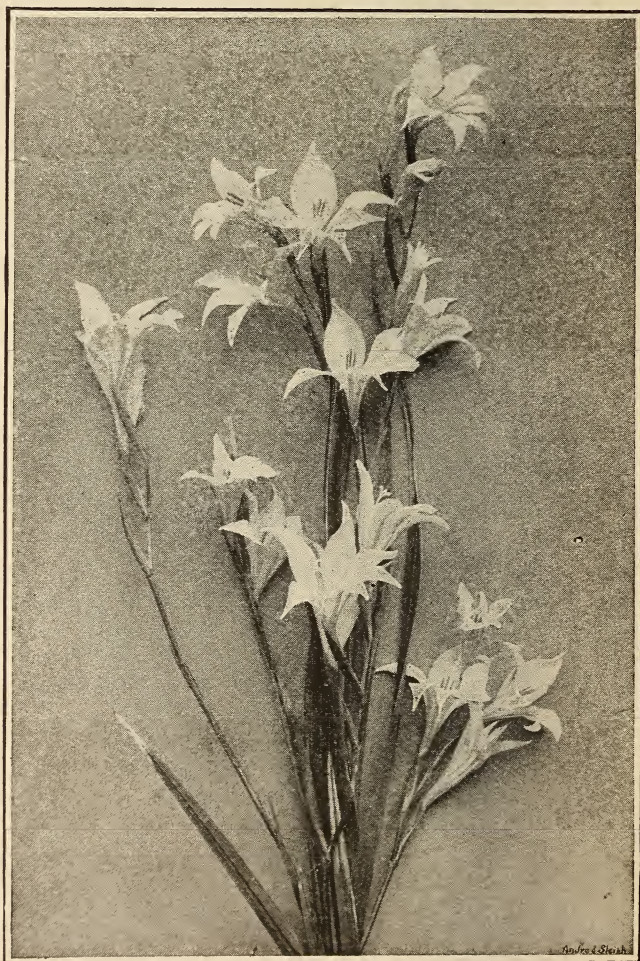


FIG. 37.—GLADIOLUS COLVILLEI THE BRIDE.

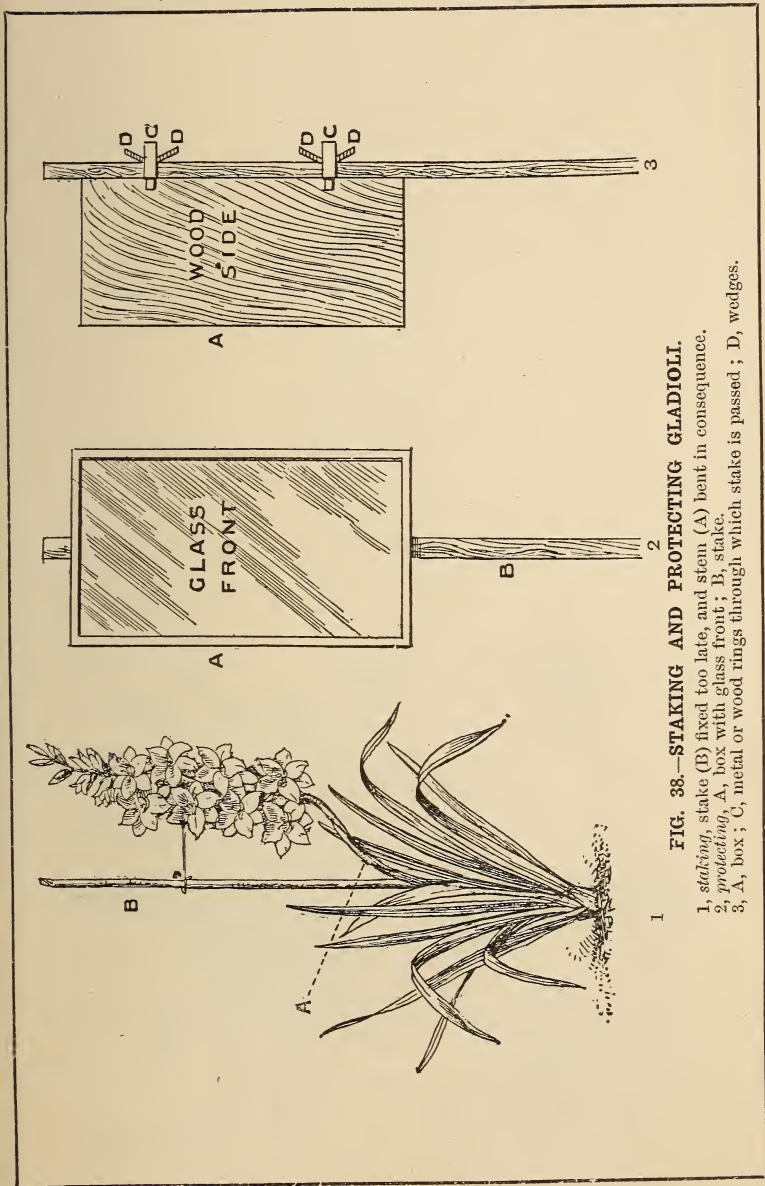
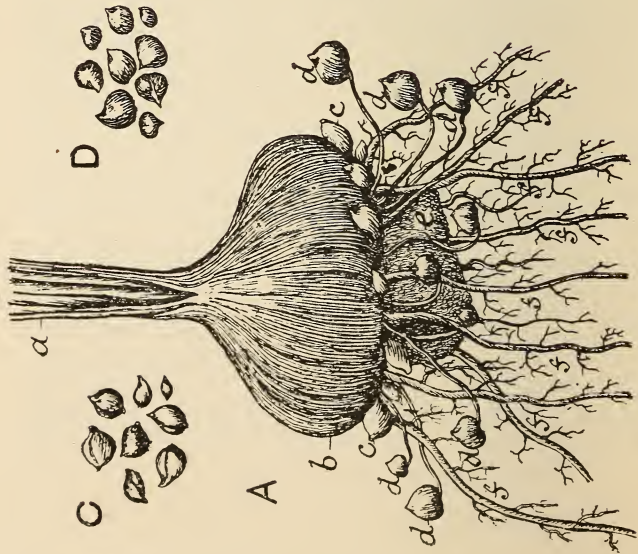


FIG. 38.—STAKING AND PROTECTING GLADIOLI.

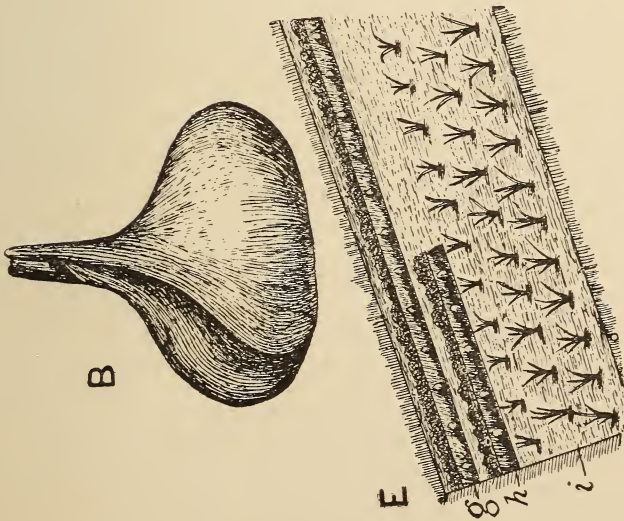
1, staking, stake (B) fixed too late, and stem (A) bent in consequence.
 2, protecting, A, box with glass front; B, stake.
 3, A, box; C, metal or wood rings through which stake is passed; D, wedges.



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 39.—LIFTING AND INCREASING GLADIOLI.

A, corm of *Gladiolus Gandavensis* as lifted in November; *a*, portion of top; *b*, corm; *c*, cormels at base; *d*, bulbils or "spawn"; *e*, remains of old corm; *f*, roots that die in drying.
 C, cormels from base of corm.
 D, bulbils, or "spawn" from ends of roots.



PICTORIAL PRACTICE.—PLAIN HINTS IN FEW WORDS.

FIG. 40.—PLANTING YOUNG GLADIOLI.

B, corm trimmed for storing.
 E, mode of planting: *g*, drill with spawn in position; *h*, spawn partly covered; *i*, young plants from spawn.

Chapter XXXII.—Gloxinias

MODERN Gloxinias are descendants from *Sinningia speciosa*, horticulturally a useless plant as compared with the valuable race of which it is the parent. The Gloxinias have literally been raised from the dust. When first the old florists produced them the flowers were pendulous, and each one had to be separately tied and staked that the plant might make a presentable appearance. Gradually the bell-shaped flowers were raised to a horizontal position, and their stems were at the same time strengthened. Now we have erect flowers in all the best strains, and it is not necessary to give any artificial support unless the plants are for exhibition or have to travel some distance.

There are three distinct methods of increasing Gloxinias—by seeds, by leaf cuttings, and by division of the rounded, tuberous root-stock. The latter is an easy method, practised in spring, directly new growth begins. For leaf cuttings it is best to select fully developed leaves of an approved variety, cut through the midrib and principal veins with a sharp knife, and peg them down on some moist sandy soil. Young tubers will soon form at the severed parts, and when large enough must be potted. A recommendable compost for tubers consists of 2 parts of fibrous loam, 1 part of leaf mould or peat, and sufficient sand to keep the whole porous. For seedlings and young plants generally it is advisable to increase the leaf mould or peat and reduce the quantity of loam. In the matter of temperature a mean of 65° is correct for the summer, but in the winter growing plants ought not to be subjected to less than 55° even at night. For resting plants a minimum of 45° will suffice, but 5° higher is safer.

It is quite possible within six months from seed sowing to secure a splendid display of Gloxinias. The way to go about the business is to sow seeds in one or more of the first three months of the year according to the demand and the date at which it is desired to have plants in flower. Provide the seed pot with ample drainage, and fill it to within $\frac{1}{2}$ inch of the rim with fine sandy soil; after pressing the soil firmly, water it through a fine rose, and when the water has passed away sow the seed thinly, cover the pot with a sheet of glass, put thin paper on the glass, and stand all together in a house or pit where a moist atmosphere and a temperature of 70° are maintained. Transfer the seedlings to other pots or pans as they become large enough to move, taking care not to disturb the tiny ones that lag behind. Three-inch pots will be large enough for the next move, and from thence to 5- or 6-inch pots will be sufficient for the next shift, and in these the plants will flower.

To keep Gloxinias sturdy it is essential that fresh air be admitted on all favourable occasions, but not in such quantity as to rapidly or materially reduce either the temperature or the atmospheric moisture in the house. Stand every plant clear of its neighbour, so that there is no competition for light or moisture. When the flowers begin to expand we want Gloxinias for the conservatory, and for this reason, and also because the plants need it, drier and slightly cooler conditions are desirable. Signs of the approaching season of rest will be observed a short time after the last blooms fade, and these must be accepted as notice to give water sparingly; allow sun and air to do their part in maturing the tuber previous to its annual sleep. Have a care where the Gloxinias are stored, or it may happen that when the time for starting them comes round again there will be rotten tubers as a result of too moist conditions, or shrivelled, useless tubers because of their proximity to the heating apparatus.

Selection of Gloxinias.

Aigburth Crimson, crimson self.	Mont Blanc, white.
Ariadne, maroon and pink, veined and spotted crimson and rose.	Netted Queen, white and scarlet, netted rose.
Claribel, white spotted crimson.	Prince of Wales, crimson scarlet.
Defiance, scarlet.	Princess Maud, cherry red, violet and white border.
Electra, maroon and blue, with white margin.	Princess May, white, blush tinted.
Ensign, purple and white.	Reading Scarlet, rich scarlet.
Galatea, white, edged violet purple.	Suttons' Purple, purple, white base.
Her Majesty, white, very fine.	The Beacon, crimson.



FIG. 41.—A COLLECTION OF CHOICE GLOXINIAS.

Chapter XXXIII.—Hemerocallises.

THE popular title of Day Lilies, given to Hemerocallises, has reference to the evanescent character of the individual flowers, but so beautiful are they, and so freely produced over a considerable period, that the species and hybrids have become prime favourites with lovers of hardy plants. A sunny position is a matter of the first importance, but the Day Lilies are not so particular as to soil, though the better this is the more freely are growths and flowers produced. The new aurantiaca major seems to be the only one at all "finicky": it has high notions, and is satisfied with nothing less than deep and fairly strong loam. It is such a beauty, however, that to secure its success is worth an effort. Fortunately, Hemerocallises can be readily increased by division of the thick roots in autumn or spring. Large clumps are the most effective; therefore we advise leaving the nurserymen to work up stock. To Mr. G. Yeld, of York, praise is due for the many charming Day Lilies he has raised.

Selection of Day Lilies.

Apricot, apricot yellow.	Flamid, orange yellow.
aurantiaca major, vivid orange.	flava, yellow.
Dumortieri, orange and brown.	fulva, coppery yellow.
	Sovereign, orange yellow

Chapter XXXIV.—Hepaticas.

IT were an easy matter to dwell at length upon the beauty of Hepaticas and the desirability of extending their cultivation, but those who have once seen these gems in full bloom will need no further urging, while for those who have never seen them it is hopeless to attempt to convey an adequate idea of their loveliness. As Hepaticas are strictly Anemones, forms of *Anemone Hepatica*, and thrive best in a deep but rich and light soil, like other choice members of the genus, it is unnecessary to add more in the way of cultural directions than suggest that the foot of the rock garden offers a suitable site for them. An autumnal mulching with decayed stable manure or leaf mould is of importance, owing to the habit the plants have of raising their crowns above the soil.

A selection will include *angulosa*, bright blue, and the white, blue, and red varieties of *Hepatica triloba*, all of which are represented by beautiful double forms.

Chapter XXXV.—Hyacinths.

THE cultivation of Hyacinths in pots had a much greater vogue a decade or two ago than it is favoured with at the present time. One could then see them in every greenhouse and conservatory in considerable numbers, whereas now they are either absent or so poorly grown that they fail to make themselves conspicuous.

The reasons for this diminution in popularity may probably be found in the increased variety of plants which we have at command, to the fact that the majority of people now prefer to have plants of more graceful habit, and such as will provide far more valuable material for cutting, and again in the apparent inferiority of the bulbs that come to us from Holland.

Certain it is that the instances of the magnificent spikes which were contributed to exhibitions in various districts, and the equally splendid specimens in many a score of gardens, are comparatively limited, though happily not absolutely unknown. The bulbs that reach this country in such vast numbers do not, in outward appearance at any rate, suggest any material falling off in quality, but it is a rare event to find Hyacinths in their several varied colours of that quality which compels our appreciation, even while we are out of sympathy with the formality of the flower.

For bedding purposes it seems that instead of depreciating in general esteem they are steadily gaining, for their value for spring bedding forces itself upon everyone. There is no doubt that beds planted with Hyacinths of distinct colours are strikingly handsome, and in addition to this, in a hurrying, scurrying age such as ours, the fact that they are easily grown speaks loudly in their favour.

We see, however, even in this phase of Hyacinth culture, signs of a gradual but none the less sure change. Time was when the one kind only was employed, and it was the exception rather than the rule for a carpeting to be used; while the inclusion of some totally dissimilar bulb was regarded as a sacrilege rather than an improvement. Look on every hand now, and what do we see? Are not, broadly speaking, all the beds planted with something that will hide the nakedness of the ground? And do we not see scores of beds in which some handsome Narcissus, like Sir Watkin, Emperor, or Empress, is in association?

Before giving a number of varieties as amongst the best in their several colours, it may, perhaps, be well to say that almost without exception the single varieties are superior to the double forms, as well for bedding as for cultivation in pots. In any

case, the garden varieties should, as far as possible, be selected from those having decided colours and not too packed a spike. Washy or undecided hues fail to produce the brilliant effect that can be secured when consideration is given to the picking, and only those of marked individuality are chosen.



FIG. 42.—HYACINTH LA GRANDESSE.

(See page 120.)

Single Hyacinths.

Red and Rose Coloured.

Cavaignac.
Fabiola.
Gertrude.
*Gigantea.
L'Incomparable.
Lord Macaulay.

Norma.
Queen of Hyacinths.
*Robert Steiger.
*Roi des Belges.
Sultan's Favourite.
*Von Schiller.

Blue of Various Shades.

Argus.	*King of the Blacks.
Blondin.	*King of the Blues.
Charles Dickens.	Leonidas.
Czar Peter.	*Lord Derby.
Grand Lilas.	Masterpiece.
*Grand Maître.	Pieneman.

White and Tinted.

Alba Maxima.	L'Innocence.
Grand Vainqueur.	*Madame van der Hoop.
*Grandeur à Merveille.	Mont Blanc.
King of the Whites.	Mr. Plimsoll.
*La Franchise.	Snowball.
*La Grandesse (<i>see p. 119</i>).	Voltaire.

Yellow Shades.

Bird of Paradise.	*King of the Yellows.
*Ida.	L'Or d'Australie.

Double Hyacinths.*Red and Rose.*

*Cardinal Wiseman.	*Koh-i-Noor.
Grootvorst.	Noble par Mérite.

Blue.

Bloksberg.	*Laurens Koster.
Garrick.	Van Speyk.

White.

Bouquet Royal.	*La Tour d'Auvergne
La Virginité	(early).
	Prince of Waterloo.

Yellow.

Bouquet d'Orange.	Jaune Suprême.
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Hyacinths for Bedding.

While one may, if one feels disposed, procure these under name, the more general and perhaps more satisfactory way is to purchase the bulbs under the designations of "crimson," "rose," "scarlet," "white," or what not, as the bulb merchant invariably chooses varieties that are in every respect suitable for the purpose. Those named are, however, of splendid quality.

Amy, crimson.	*King of the Blues, dark blue.
Charles Dickens, porcelain blue.	*La Grandesse, pure white.
*Grand Maître, deep porcelain blue.	Robert Steiger, scarlet.
Grandeur à Merveille, pale blush.	*Von Schiller, rose, carmine stripe.

* These may be chosen where fewer varieties are wanted.

Hyacinths for Glasses.

In procuring Hyacinths for cultivation in glasses it is most necessary that the merchant be informed of the object in view.

Even when the varieties are specially named, the course is just as imperative, as absolutely sound bulbs, of medium to large size, and heavy for their size, are then chosen. In pot culture perfect soundness is beyond question desirable, but in water growing it is the chief essential to success. A few varieties, again, do not succeed at all when put into glasses, and for these reasons the selection is almost invariably best left to the dealer, in the certain knowledge that the best that can be done will be done.

Hyacinths for Forcing.

Directly one speaks of Hyacinths for forcing one's mind irresistibly pictures the most valuable of all, the Early White Roman. We have, it is true, the Italian varieties, which are also responsive to forcing treatment, but they pale into insignificance beside the Roman. The majority of the Dutch varieties can be accelerated in flowering with perfect safety provided that only the gentlest forcing tactics are adopted, but they are never so satisfactory as when allowed to advance quite naturally.

The finest of the Dutch varieties for the purpose indicated is probably the double white La Tour d'Auvergne, which will stand any reasonable amount of extra heat.

Miniature Hyacinths.

In comparison with the typical Dutch Hyacinth, it is fair to say that the miniatures are toys, and are not, therefore, worthy of serious attention. For one purpose they no doubt have a substantial value, and that is for children, who, while small themselves, may prefer a small rather than an adult bulb. This is a phase of bulb growing that might well be accorded much greater encouragement, for the production of really excellent miniature Hyacinths is well within the powers of the little ones, whose interest in flowers is beyond question increased when they can watch the progress of their own nurselings. The bulbs may be placed in water or soil, preferably the latter.

The culture of Hyacinths is treated on in the opening chapters.

Chapter XXXVI.—Iris.

WHOEVER the person may have been that gave the popular name of "Poor Man's Orchid" to the Iris family, he was certainly something of a genius, for a more fitting designation could not possibly be conceived. Orchids are, speaking broadly, the flowers of the few, but Irises are literally the flowers of the many, for judicious selection will afford those that will grow anywhere.

Widely as they are grown at the present time, it were an

impossibility to plead too strongly for still further attention to be devoted to them by all plant lovers. In far too many gardens at this moment the only representative of the family is an aged clump of a variety of *I. Germanica*, which, beautiful as it may be, does not adequately uphold the honour of the genus. This, it will probably be said, is the case in small gardens only, and by no means gives a fair



FIG. 43.—IRIS IBERICA.
(See page 125.)

idea of the state of affairs in a garden of pretension ; but even in quite large places German and Spanish Irises are the sole members of the race.

It may be asserted, with little or no fear of contradiction, that the formation of an Iris garden would add a feature of interest to a place which might be equalled, but certainly could not be excelled, by a garden of any other kind of plants that one could mention. More strikingly beautiful effects can easily be secured, of course, but,

given sufficient room for the adoption of a comprehensive scheme, where is the family that will give flowers absolutely from one end of the year to the other?

The hypercritical person will perhaps say that there would be a sameness in such a garden that would not be found with other plants, but this is far from the actual fact of the case, for Irises differ widely in habit, time of flowering, in size—both of stature of plant and bloom—and in colours. True, there is no suspicion of gaudiness about them; they are flowers which essentially appeal to the refined taste, and not at all to those who will not trouble to seek for the beauty that is there.

Let a man once start an Iris garden, and he will quickly become engrossed in its management, for the very fact that some sorts will prove difficult to thoroughly establish will add zest to the hobby, and insure never failing pleasure. There will be the lowly gem of 3 inches in height, and the stately beauty whose flowers sway in the breeze some 3 or 4 feet above the ground. And so it would be easy to continue to extol the virtues of the Iris garden did space permit.

This family, it must be understood, is very large indeed, and the number of species and varieties is enormous; they come well-nigh from all quarters of the globe and from all climates, and demand proportionately different treatment, so that considerable care must be exercised in procuring the stock. The accompanying selections contain representatives of each section, as well as varieties of several, and if chosen in their entirety would form a splendid collection of these most delightful plants.

With a view to facilitating the selection for the benefit of those who only wish for one or two classes of Irises, the lists are made as clear as possible by division.

Selections of Irises.

In each case where the colours are given that of the standard is placed first, and that of the falls last; markings are not included in every instance. In the case of the enumeration of the varieties of *I. Germanica* and others the colours are not always given, as they would take up a lot of valuable space, but the varieties are in each instance as distinct as possible.

Species of Irises.

aphylla, lilac.	neglecta, lilac (see selections).
aurea, yellow.	ochroleuca (gigantea).
Cretensis, lilac.	Pseudacorus, yellow.
fetidissima, blue and lilac.	Water Flag.
flavescens, yellow.	pumila, lilac purple.
Florentina, white. Orris root.	Sibirica, blue.
Germanica, many colours (see selections).	squalens, lilac and purple.
graminea, lilac and purple.	ungicularis, lilac and blue.
Kempferi (see levigata).	variegata, claret and yellow.
levigata, many colours (see selections).	

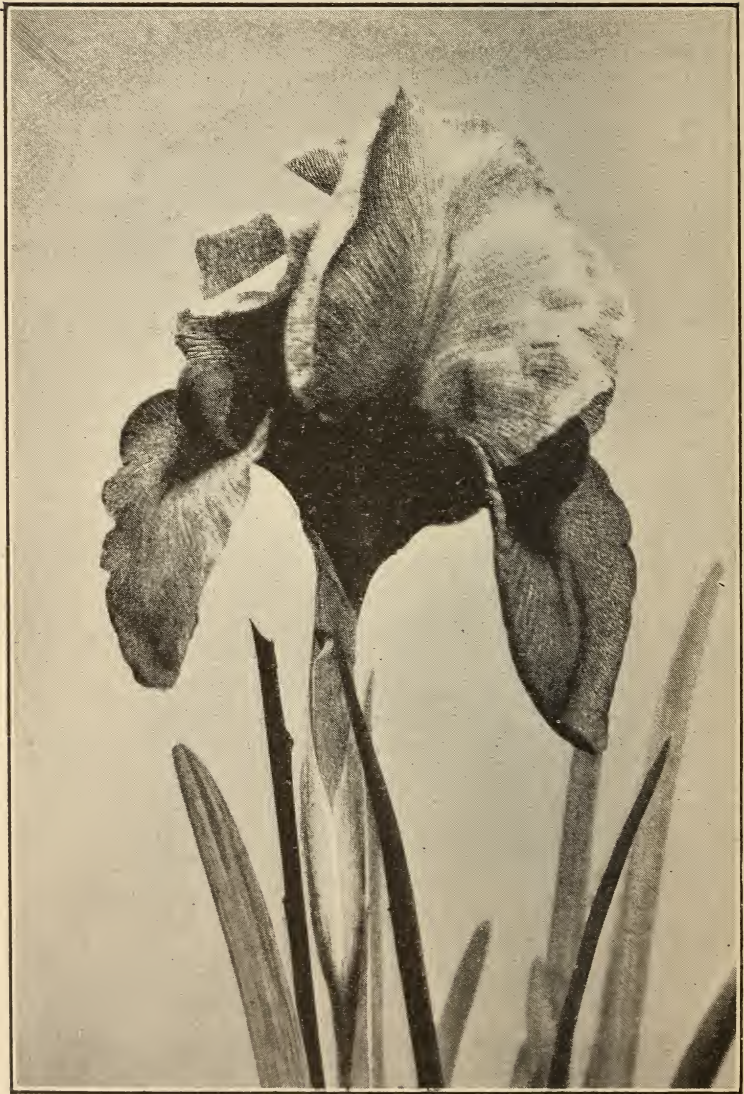


Photo: Cassell & Co., Ltd.

FIG. 44.—IRIS SOFARANA MAGNIFICA.

(See page 125.)

Cushion Irises.

Bismarckiana, blue and yellow.	Sofarana magna, standards grey, falls grey, crest black purple (<i>see p. 124</i>).
Korolkowii, white and red brown.	Susiana, brown, black, and lilac.
Iberica, pale lilac and purple brown (<i>see p. 122</i>).	tuberosa, purple and yellow.
Lortefii, cream and rose.	Urmiensis, primrose and yellow.
nigricans, purple, black, and crimson.	
paradoxa, white and blue.	

Xiphion Irises.

alata, lilac and purple.	reticulata, violet, purple, and yellow.
Bakeriana, white, violet, and blue.	Xiphioides, many colours.
Danfordiæ, yellow and brown.	English Iris (<i>see selections</i>).
Histrio, lilac.	Xiphium, many colours.
orchioides, yellow.	Spanish Iris (<i>see selections</i>).
Persica, yellow and lilac.	

Selection of English Irises.

This section is a very valuable one, for, not only are the flowers exceedingly handsome for garden adornment, but they are also of particular utility for cutting purposes. There is a good diversity of colours, and the varieties are well worthy of more attention.

Asmus.	Lord Palmerston.
Clara Butt.	Lucinda.
Cleopatra.	Mont Blanc.
Emperor.	Peacock.
Harlequin.	Rosa Bonheur.
La Grandesse.	Vainqueur.

Selection of Spanish Irises.

These are amongst the most beautiful of all the members of the family, and they are probably the most widely grown and appreciated, if we except the varieties of *Iris Germanica*. They flower about fifteen days in advance of the English sorts, and are quite as useful for cutting—in indeed, many persons prefer them, as they are even more refined.

Avalanche.	Garibaldi.
California.	Gold Spur.
Canary Bird.	Jupiter.
Catherina.	Lady Blanche.
Celestial.	Snowball.
Chrysolora.	Thunderbolt.

Selections of Iris levigata.

For many years this section was known in gardens under the name of *Iris Kempferi*, but the plants did not attain to the popularity that was anticipated. No doubt this is to be accounted for by the fact that the earlier efforts in their cultivation were not attended with unqualified success, as their requirements were imperfectly under-

stood. Now they are rapidly advancing in esteem, and rightly so, for where they will thrive they are of superb beauty. The flowers are frequently as much as 9 inches in diameter. They are usually sold in named sets, the selection of the varieties resting with the bulb merchant, but those enumerated will be found excellent.

<i>Duplex.</i>	<i>Single.</i>
Blue Jay.	Apollo.
Eclair.	Blue Bird.
Gold Bound.	Exquisite.
Mahogany.	Helen von Siebold.
Prince Camille de Rohan.	Quakeress.
Robert Craig.	Snowbound.

Selections of Bearded Flag Irises.

<i>Aphylla.</i>	<i>Neglecta—continued.</i>
Bridesmaid.	Hannibal.
Donna Maria.	Prince Arthur.
Gazelle.	Shirley Hibberd.
Madame Chereau.	<i>Squalens.</i>
Panormitana.	Cleopatra.
Sylphide.	Harrison Weir.
<i>Amena.</i>	Lord Grey.
Calypso.	Madame Sontag.
Duc de Nemours.	Mozart.
Herald.	Sir Walter Scott.
Mrs. H. Darwin.	<i>Pallida.</i>
Sylvie.	Celeste.
Virginie.	Cypriana.
<i>Germanica.</i>	Garibaldi.
alba.	Junonia.
atropurpurea.	Madame Pacquette.
grisea.	Queen of May.
Kharput.	<i>Variegata.</i>
major.	Chénédolé.
Purple King.	Darius.
Sarpedon.	Innocence.
<i>Neglecta.</i>	Liabaud.
Cordelia.	Marjolin.
Fairy Queen.	Sans Souci.
Garrick.	

Selection of Beardless Flag Irises.

aurea lauchiana.	Monspur.
cristata.	ochroleuca.
hematophylla.	ruthenica.
Hartwegii.	Sibirica.
Japonica (fimbriata).	spuria A. W. Tait.
Monnieri.	spuria Notha.

Chapter XXXVII.—Ixias.

OUR southern friends have quite the best of it when Ixias, or African Corn Lilies, are the subjects to be cultivated. We may all grow Ixias in pots, and charming plants they are for the greenhouse or conservatory, but it is to Cornwall and Devon we must go to see how well they can flourish out of doors when the climate is suitable. In less favoured districts a sheltered position and light soil may lead some reader to attempt Ixia culture, and therefore a few details may prove valuable. October is a good time to plant, and as these Cape bulbs are only half hardy they must be put 4 inches deep. In addition to deep planting, it will be necessary to give some protection, such as dry litter or leaves spread over the bed to a depth of several inches. In very severe weather a mat may be also used to further protect the bulbs from frosts and heavy rains. In the spring all this material must be removed, or the growth will be drawn and weak.

Experience proves that the best way to ripen the bulbs is to lift them as soon as they have flowered, and lay them out, with a very little soil over them, where the warmth of the sun will reach them. Pot culture is the more popular, however, and as the treatment found successful is as nearly as possible the same as advised for Freesias, it need not be again detailed. I may state that, for once in a way, early planting out of doors is not advisable, because should there be mild weather during the early part of the winter growth will push up and fall a prey to the later frosts.

Selection of Ixias.

Golden Drop, golden yellow, maroon eye.	speciosa (crateroides), scarlet.
Gracchus, yellow, ruby eye.	Titus, yellow, black eye.
Hortense, blue and purple.	viridiflora, green, very distinct.
Refulgens, yellow, brown eye.	Vulcan, rich crimson.
Snowflake, white.	Wonder, rose-pink, double.

Chapter XXXVIII.—Lachenalias.

THE fact of the matter is that Lachenalias, or Cape Cowslips, are not taken seriously by the majority of amateur growers. So good tempered are these South African bulbs that they flower fairly well under even somewhat indifferent treatment. But we hear someone asks, "Why bother any further, if the plants are naturally so

accommodating?" The only answer is to point to such fine specimens as Mr. Allen grows at Gunton Park, Norwich, or those cultivated at the Glasnevin Botanic Gardens at Dublin. If you have hitherto seen nothing but mediocrity in *Lachenalia* culture, and are wishful to discover the possibilities of these charming flowers, then let us ask you as a personal favour to carefully follow out the course of procedure here briefly stated, and you will presently be anxious to shower blessings upon the advisers.

First of all, let it be said that the *Lachenalias* have small bulbs; their leaves are green, often spotted with purple; their spikes are stout, rising from 6 inches to 1 foot in height, according to the cultural skill attained by the grower and the habit of the species or hybrid grown. Thus, *pendula* will not grow so high as *Nelsoni* or *tricolor*, and neither is likely to be as tall as *violacea*.

No plant objects to coddling more than the *Lachenalia*, but it must always be kept out of the reach of frost. Hence, although a cold frame could not be improved upon for the newly potted bulbs, they must be taken into the greenhouse as soon as growth commences, so that neither check nor harm comes to them. One frequent and almost irrevocable mistake is made by both professional and amateur cultivators; they delay the potting of the bulbs too long. This is a mistake, because by the middle of August new roots have begun to form on bulbs wintered in the soil in which they were grown the previous year, while stock procured from the bulb dealer ought by this time to be in a position to make new roots. It is useless venting your wrath upon the bulb dealer, for he has no option but to send the goods as soon as possible after they are ordered, and if this is delayed until mid-autumn, when every other body is ordering, then there is likely to be still further delay, and meantime the bulbs are not improving. Order in July, so that potting may be commenced early in August. Remember that *Lachenalias* delight in plenty of fresh air, but detest draughts; they love a little warmth, but abhor much fire heat; and though they must never suffer from drought while growing, neither must water be given them at any and every opportunity. Do not let your watering or thinking, as far as *Lachenalias* are concerned, be done by proxy.

Do not imagine there are great difficulties to surmount in the culture of these Liliaceous plants; it is rather a question of "stick-at-iveness." Try 5-inch pots, as they will be quite large enough in a general way; provide ample drainage material, then fill up the pots with a mixture of loam, leaf soil, and dried cow manure, using 2 parts of the former to 1 part of each of the latter, and adding a good sprinkling of sand; place half a dozen bulbs into each pot, make the soil firm around them, and leave them with their tops just $\frac{1}{2}$ inch below the surface.

When you have a good stock of bulbs, some should be potted in July and others at short intervals until the end of August, to permit of as great an extension of the flowering season as possible;

this desirable end may also be secured in some measure by retarding some plants when the spikes appear. Give liquid cow manure twice a week from the time the spikes begin to elongate until the flowers commence to fade. By these means a display may be had from February to May.

Directly the leaves commence to fade reduce the water supply, and when they are yellow stand the pots in a cold frame where all the sunshine possible will reach them, and so give the bulbs that roasting without which they will not flower satisfactorily the following year. Wire baskets lined with moss and planted both at the top and sides offer a variation—and a very good one too—from pot culture.

Selection of Lachenalias.

Nelsoni, golden yellow.
pendula, purple, red, and
yellow.
tricolor, green, red, and
yellow.

violacea, white, violet,
and green.

There are several beautiful hybrids and garden varieties, but the foregoing make a fine selection.

Chapter XXXIX.—Leucojums.

It is quite incomprehensible, but none the less true, that among fifty people who know a floral Snowdrop not more than ten will be found who grow the floral Snowflakes. Yet these Snowflakes, or Leucojums, are equally as beautiful as their earlier flowering and better known relatives the Snowdrops. We are free to confess to a deep regard for the Snowflakes, chiefly because their beauties may be enjoyed without the accompaniment of the topcoat, thick gloves, and jack-boots so frequently necessary when we inspect our outdoor Snowdrop blossoms. Snowflake is a pretty name, and there need be no quarrel with its inventor, but Snowbell would have been more appropriate and not less poetic.

Snowflakes show to greatest advantage when planted in the rock garden or among grass, but a few good clusters in the front of a flower border must not be forgotten. With the exception of *hyemale*, all the Leucojums are hardy, and *hyemale* only needs the protection of a hand-light or frame. Being a stronger grower than the others, *estivum* is the best for naturalisation in grass or woodland; it also likes a somewhat retentive soil as compared with the sandy loam most suitable for the others, whether it be in the open or grown in pots. However grown, it is highly desirable the bulbs be procured early in the autumn and at once planted not less than 1 inch or more than 2 inches deep.

vernum, white, with a
green spot at the tip
of each outer segment.

estivum, white.
hyemale, white, tender.

Chapter XL.—Liliums.

LONG, long ago, the garden folk decided that "the Rose the queen of flowers should be," but they forgot to find a title for the stately and beautiful Lilies. Granted the Rose is queen, we are in duty bound obliged to recognise her associate, the Lily, as the empress of the flowers. Fascinating flowers are the Lilies—the more so because they do not all exhibit their charms with equal freedom in every garden. The wealthy may excel with *auratum*, the Golden Rayed Lily, and with *Henryi*, or even the somewhat fastidious *Humboldti*; but the wealth of bloom, purity, and fragrance of *candidum*, the delightful Madonna Lily, may be denied them, though it may be abundantly granted to the farm labourer whose garden plot is on the same estate.

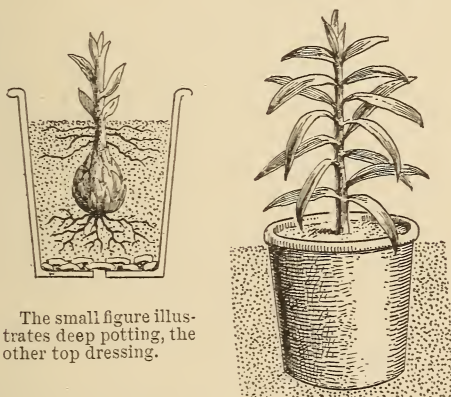
It is sometimes very difficult to give a reason why *Liliums* fail in soils and positions where they may reasonably be expected to thrive. From a gardener's point of view there are three distinct classes of Lilies, excluding those that are only suitable for cultivation under glass, and it not infrequently happens that the likes and dislikes of the various species are misunderstood or left out of consideration by intending planters. This is a fruitful source of failure, as also is careless planting. According to the size of the bulb and the height of the species, the depth at which it is placed should range from 3 inches to 10 inches. Other important points to be observed at planting time are to put the bulb on a firm base and surround it with sand. A firm base is necessary to prevent the bulb from being "hung" when rain follows and the soil settles down.

Not only the question of soil, but also that of height, must be duly taken into account before planting is begun. Much time, money, and patience are annually wasted in attempts to cultivate Lilies that might be saved by the exercise of a little forethought and care in the initial stages of work. *Liliums* range in stature from the lowly forms of *elegans* and *concolor*, which often attain a height of only 6 inches, up to the 10 feet or 15 feet attained by the noble *giganteum* when it is well established in a place that meets its requirements.

Shelter from cold winds, as well as from scorching sunshine, is appreciated by Lilies; but this must not be taken to mean that these handsome flowers grow well beneath the overhanging branches of trees. They do nothing of the kind; but what they do love, or at least the stronger growers, is a home among thinly planted shrubs,

such as Rhododendrons, where the needful shelter is afforded naturally in the spring time, and the bulbs and stem roots are protected from the hot summer sun. The mention of stem roots may here be taken advantage of to explain that many *Liliums* not only root out from the base of the bulb, as do Daffodils and the like, but also produce roots from the base of the ascending growth. This peculiarity at once suggests that an annual top dressing of leaf soil, or a light, rich compost, will materially assist the plants.

Many of the best Lilies are magnificent pot plants, hence they have long been popular for window culture, for the adornment of the conservatory, and for the supply of Covent Garden and other distributing centres for choice pot plants and cut flowers. Unquestionably the best Lilies for pot culture are *longiflorum*, its



The small figure illustrates deep potting, the other top dressing.

FIG. 45.—HOW TO POT LILIUMS.

variety *Harrisii*, both the red and white forms of *speciosum* (also well known as *lancifolium*), *auratum*, and *Henryi*. With the advent of cold storage chambers, and their installation by some of the leading nurserymen, it is now possible to have Lilies in flower over a very long period by starting retarded bulbs at intervals.

For the accommodation of Lilies it is desirable, though not essential, that in relation to their diameter the pots should be deeper than is usual. This permits the grower to take full advantage of the stem roots in his endeavour to produce the best possible crop of flowers; Nature and art may well combine to secure this desirable end. Each pot must be provided with a perfect drainage system, and over the crocks it is a good plan to place a layer of the rougher portion of the compost: then add a layer of soil—consisting of 4 parts of loam to 1 of leaf soil, with a little sand—and on this place the bulb firmly, surrounding it with a handful of sand, and just covering the bulb with the compost. This will leave the

pot slightly more than half full, and allow sufficient space for a top dressing when the stems have made some considerable progress and are beginning to emit stem roots, as well as the usual ultimate space for water.

Gladly would we omit any reference to diseases, but there are some ills to which even a Lily is heir. Indeed, there are two diseases that now and again attack Lilies, and it is better to be prepared for them than to lull one's self into a sense of false security. For the fungus that all too frequently spoils fine clumps of candidum the only remedy seems to be flowers of sulphur; lift the diseased bulbs directly the stems lie down, and place them in small bags filled with the sulphur, leaving them so for several days before planting them in new positions. Disease number two is a fungus known to fungologists as *Rhizopus necans*, and to gardeners as the auratum disease. It affects imported bulbs of auratum and speciosum, and is probably induced by the rather rough treatment received from the time of harvest in the Far East to the time they reach the cultivator. Our leading mycologist, Mr. Masee, who takes a paternal interest in fungi of all sorts, and is rather inclined to think they should have a chance of existence instead of being continually warred against, has recommended that bulbs for export be given a twenty-minute bath in a 1 per cent. solution of salicylic acid. A light annual top dressing of kainit mixed with soil was also recommended by Mr. Masee at the Lily Conference held at Chiswick by the Royal Horticultural Society in 1901, as a remedy for Lily mildew and other fungus troubles.

Selections of Liliums.

Selection of easily grown Lilies.

In this section are grouped together those Lilies that are the least fastidious, and will thrive in any good garden soil.

- | | |
|---|---|
| candidum, white; Madonna Lily. | speciosum, white, brown spots; the finest forms are album novum, Kretzeri, Melpomene, and rubrum. |
| Chalcedonicum, scarlet; Heldreichi is a fine form. | testaceum, light yellow. |
| croceum, orange; Orange Lily. | tigrinum, scarlet, brown spots; there is a good double form, and Fortunei and splendens are fine. |
| elegans, scarlet; many varieties, the best being Alice Wilson, aurantiacum, atrosanguineum, Batemani, and Orange Queen. | umbellatum, red; cloth of gold, aurantiacum, grandiflorum, and Sappho are all desirable. |
| Hansoni, yellow. | concolor, orange yellow. |
| Henryi, yellow, brown spots. | Dalhansoni, purple. |
| longiflorum, white; Harrisi and Takesima are good varieties. | Marhan, orange red, brown spots. |
| Martagon, purple; Turk's Cap Lily. | pomponium, red. |

Selection of loam-loving Lilies.

This set requires good, deep loam in which to do itself justice ; but if the loam available is very heavy, strongly inclining to clay, then leaf soil and sand may be used to lighten it.

auratum, white, golden yellow, purple spots; platyphyllum, rubrovittatum, and Wattei are the finest forms of this golden-rayed Lily of Japan.
Browni, white, shaded brown.

giganteum, white; noblest of Lilies.
Humboldtii, yellow, purple spots; Bloomerianum is a bright form.
monadelphum, yellow.
rubellum, deep Rose pink.
japonicum (Kramerii), rose.

Selection of peat-loving Lilies.

These all delight in a deep, moist peat, and if the soil is not naturally suitable peat must be added to secure a fair measure of success.

Canadense, orange red, red spots; numerous varieties, flavum and rubrum being the best.

pardalinum, orange scarlet, crimson spots; Bourgei, Californicum, and Michauxi are very handsome.
Burbanki, apricot, orange.
superbum, orange, spotted crimson purple.

Selection of tender Lilies.

All the following are tender, requiring such protection as a greenhouse or a winter garden affords :

Nepalense, yellow, shaded purple.
Neilgherrense, pale yellow.
Philippinense, white.

sulphureum, sulphur yellow, shaded brown.
Wallichianum, white.

Chapter XLI.—Montbretias.

It is the hybridist we have to thank for this group of graceful and beautiful autumn flowers. Not so very long ago they were non-existent, but when some far-sighted raiser took in hand the original hybrid between *Crocsmia aurea* and *Tritonia Pottsii* he obtained results that must have surpassed his most sanguine expectations. By his efforts our gardens have been made the more delightful and our homes the brighter during August and September because of the elegant branching spikes of brilliant flowers that are sold at so cheap a rate by florists of all grades.

In this volume both parents of the race are included, as the habit and requirements of all are very similar. Montbretias are

quite hardy, but they are failures in some gardens, notably in those where the soil is very dry or where the winter rains do not pass away freely. Such failures would be obviated were beds of rich soil made up on a well drained site, and planting deferred until early spring. Six inches is a good depth to plant. Wherever climate and circumstances admit planting is best done in the autumn; a little Bracken, litter, or Heather laid on the bed keeps the bulbs perfectly safe, but will not be necessary in many gardens. The growth of *Montbretias* closely resembles that of a small *Gladiolus*, but the spikes are branched, reach a height of about 2 feet, and bear a profusion of neat and brilliant blooms over a long period. Nor must the pot culture of *Montbretias* be omitted, or a valuable conservatory plant will be lost. Grown in the same way as *Ixias* and similar subjects, but with five bulbs in each 6-inch pot, they provide a pleasing decoration at a very small cost.

Selection of Montbretias.

Brilliant, orange scarlet.	Gerbe d'Or, golden yellow,
<i>crocsmiflora</i> , scarlet,	splendid flowers.
orange, and yellow. A	Germania, orange yellow.
hybrid between <i>Croc-</i>	Pottsii, orange and scarlet;
<i>smia aurea</i> and <i>Tritonia</i>	strictly a <i>Tritonia</i> , and
Pottsii.	one of the parents of
Drap d'Or, chrome yellow,	garden <i>Montbretias</i> .
large.	Rayon d'Or, rich yellow,
Etoile de Feu, vermilion,	marked brown.
lemon centre, red out-	Soleil Couchant, golden
side.	yellow, dwarf.
	Solfaterre, bright yellow.

Chapter XLII.—*Muscari*s.

IT is presumed that most readers have at some period of their lives seen a few acres of Bluebells growing together, and have thought that in its particular scheme of colour nothing could excel such a display. But that thought only proves a lack of acquaintance with some of the *Muscari*s, and notably with that exquisitely beautiful one so appropriately named *conicum Heavenly Blue*. This is so much the finest member of the genus that if only one can be grown this should be chosen. If you have not seen $\frac{1}{2}$ acre of this charming hardy bulb in full bloom about the same time that Daffodils are aglow, or a hedge bank smothered with its sturdy, clustering spikes of azure blooms, either of which you may see at Barrs', or a bed of some early flowering shrub carpeted with it, as at Kew, then you have missed one or more of the most delightful sights the "merry spring" affords. It is by no means an expensive subject, and when once established it

may be freely increased by the removal and transplantation of offsets in early autumn, which is the proper time for lifting and removal, when this is either necessary or desirable.

Taken as a class, the Muscaris are not at all particular as to soil, though they appreciate a good sandy loam as well as most things. As regards position they are equally accommodating; in addition to situations already indicated, they should find a place on the rockery, in the flower border, or among low grass. But lest anything that has been said may frighten some bulb loving brother, we hasten to add that if he cannot grow the Muscaris by the $\frac{1}{2}$ acre then by all means grow them by the half hundred, and rather than not have any at all obtain half a dozen to start with, for it is perfectly certain that, like Oliver Twist he will, within a year, be asking for more.

Lest any reader should be at all puzzled by the dissociation of popular names from scientific ones, let it be stated that the Grape Hyacinth is botryoides; the Feather Hyacinth comosum monstrosum; the Musk Hyacinth moschatum (but it is too shy in flowering to suit most folk), and the Starch Hyacinth racemosum.

Selection of Muscaris.

botryoides, blue.
conicum, deep blue. Several varieties, of which the one named Heavenly Blue is by far the best variety.

comosum, blue. There is a rare white form of this; monstrosum is a pretty and interesting variety.
racemosum, dark blue.

Narcissi, see DAFFODILS.

Chapter XLIII.—Nerines.

ALTHOUGH there is a general agreement that Nerines, including Guernsey Lilies, are easily grown, it is nevertheless a curious fact that while in some gardens they merely exist one may see splendidly flowered specimens in the front window of a neighbouring cottage. The secret of success lies in the water pot. Water Nerines according to requirements when they are either flowering or producing and maturing their leaves, but directly the leaves turn yellow withhold water until flower spikes appear the following season. Nerines are all too frequently killed by mistaken kindness. But once the true principles underlying their successful culture are understood and acted upon, then all is plain sailing. Directly a good batch of Nerines has been grown, the self-satisfied grower sets himself up as an authority and with affected superiority wonders why in the world any one fails with "such easily grown plants."

It is usual for the bulb merchants to supply thoroughly matured Nerine bulbs early in the autumn, and as these will soon come

into flower they must be potted as quickly as possible. Rich, sandy loam forms an ideal material in which to place the bulbs, but if the loam be heavy it may be lightened by the addition of some leaf soil, while if it be poor add some thoroughly decomposed cow manure. Into 4-, 6-, 8-inch pots put one, two, or three bulbs respectively, remembering always that *Nerines* do not like to be over-potted. In this connection it may be added that the larger pots are the best to use, as they permit the bulbs to remain longer undisturbed. Give little water to newly potted bulbs until root and leaf growth are alike active. Briefly stated, *Nerines* are greenhouse plants, needing no water when leafless, but slightly warmer conditions and a fair supply of moisture while growing freely. Speaking broadly, the "dry season" is from May to August, and during that time the best place for the stock of bulbs is the sunniest and airiest shelf in the greenhouse. Two other points need mention: Weak liquid manure is beneficial to established plants developing flower spikes, and a top-dressing with some rich light soil should be given in the seasons when potting is not essential.

Selection of Nerines.

flexuosa, pink.
Fothergillii, vermilion
 scarlet.
Sarniensis, crimson scar-
 let. This is the
 Guernsey Lily pro-
 per, and *corusca* is a
 fine orange scarlet
 variety.

undulata, rosy carmine.
 Several beautiful hy-
 brids and varieties
 have been raised in
 recent years by Mr.
 H. J. Elwes, of Coles-
 bourne, but these are
 not all yet in com-
 merce.

Chapter XLIV.—*Ornithogalums.*

IN *Ornithogalums* we have a genus which, though numerically large, is not represented by a great number of species in gardens. Several are better suited to the wild garden than to the borders, while at least one, *Arabicum*, is in every respect worthy of inclusion in all collections of greenhouse plants. Others again, notably *nutans*, should be relegated to the woods, where they will increase and multiply enormously, and create a very striking effect. For the border the one that is most commonly known as the Star of Bethlehem—*umbellatum*—is the best, as its white flowers are always admired; it is also of considerable service for culture in pots.

Selection of Ornithogalums.

Arabicum, white, black
 ovary, very handsome,
 and deliciously per-
 fumed; this requires

greenhouse culture and
 is tall growing.
lacteum, white.
nutans, whitish green.

Selection of Ornithogalums (continued).

Pyrenaicum, yellow and green.	varieties, all thriving in the greenhouse.
thyrsoides, yellow ; several	umbellatum, white ; the Star of Bethlehem.

Chapter XLV.—Ranunculuses.

THE Buttercup family has given us many fine garden plants, and among these there are several that have tuberous roots. These do well in the herbaceous border, but as a rule they are seen at their best when planted in moist situations. The species now referred to are aconitifolius, best known by its double white form, popularly called Bachelor's Buttons ; amplexicaulis, white ; cortusefolius, yellow, makes a splendid greenhouse plant ; Ficaria, yellow, and its double form ; Monspeliacus, yellow ; and parnassifolius, white.

As bulbous, or more correctly tuberous, rooted subjects, the genus Ranunculus appeals to us most by reason of the variety and usefulness of the florists' forms of Asiaticus. These are wonderfully free flowering, and under favourable conditions, hereinafter particularised, grow about 9 inches high and provide distinct colour effects. The florists divide them into four sections, namely, French, Scottish, Persian, and Turban varieties. The first are the most vigorous growers, but are not so refined nor do they come always so double as the Scottish and Persian sorts. Turban Ranunculuses are hardier and have a better constitution than the two last named, and, though they have a tendency to sport, they are in many ways more useful than the others.

An ideal soil for these gay old flowers is one composed of 2 parts of good loam and 1 part each of decayed cow manure, leaf soil, and sand ; but if this ideal is not realisable there is no need to despair so long as a 2-feet depth of light, rich soil is available. The bed or plot must be dug some time before planting, to allow the soil to settle. October and February are variously stated as the correct time for putting in the queer looking tubers, and both have staunch disciples. We prefer the second month of the year, because autumn planted tubers usually need protection and do not appear to give such superior results as to compensate for the additional trouble taken and risk incurred. At planting time, no matter which month is chosen, draw drills 6 inches apart on the selected site, and 2 inches deep ; sprinkle some sand in the drills, and then put in the tubers, claws downward, 4 inches apart. Press them in firmly, just cover them with sand, and fill up the drills with light soil. Those who make a hobby of florists' Ranunculuses place an awning over the

beds as soon as the flowers open, thereby preserving the blooms as long as possible.

Selection of Ranunculuses.

French Varieties.

Abd-el-Kader, brownish red.
Attraction, carmine.
Bessie M. Weimar, white, shaded rose.
Emperor of China, yellow.
Excellent, carmine, edged white.
Fairy Queen, white.
L'Étincelante, fiery red.
Pink Beauty, pink, edged yellow.
Pucelle Aimable, purple, on white ground.
Surprise, yellow and red.

Persian Varieties.

Bridesmaid, white.
Commodore Napier, citron, edged purple.
Cramoisi à Cœur Vert, crimson scarlet, green centre.
Count Orloff, yellow, edged rose.
Fire King, scarlet.
Jaune Supreme, yellow, black centre.
King of the Netherlands, black.

Mont Blanc, white, striped rose.

Orange Brilliant, yellow, orange, and black.

Queen Victoria, white, spotted carmine.

Rose d'Hollande, carmine.

Sir William Penn, white, edged carmine.

Turban Varieties.

Black, deep crimson.

Carmine, carmine.

Hercules, white.

Merveilleuse, orange yellow.

Romano, scarlet.

Seraphique, citron yellow.

Souci Dore, red brown.

viridiflora, green, edged scarlet.

Scotch Varieties.

These are not often catalogued under names, therefore it only need be stated that the prettily spotted and edged varieties are sold in mixture; if obtained from a reliable source they will give every satisfaction.

Chapter XLVI.—Scillas.

THOUGH of lowly stature, the Scillas, or Squills, must be included among the most valuable of our early spring flowering bulbous plants. Not all, however, are so dwarf and neat as the popular *Sibirica* and *bifolia*; neither are they all spring flowering, for *Peruviana* flowers in May, *Lilio-hyacinthus* is a summer bloomer, and *autumnalis* flowers as late as August. All the sorts named below are hardy, excepting *Peruviana*, which does not do itself justice unless placed in a very warm border or given frame protection.

There is no need to make elaborate preparations for the Scillas, as they are not at all fastidious about soil, but are soon at home in all but the very worst of rooting mediums. They appreciate soil that contains a good proportion of leaf mould, a point that is at once evident to those who have carefully noted

the localities in which the common native Squill (the Bluebell of the Southerners) flourishes. Few more beautiful sights can be seen in this or any other country than a Beech wood or a Hazel copse carpeted for long distances with Bluebells during April or May.

Many of the Scillas are amenable to pot culture, and will thrive if treated in the same way as Snowdrops are when required for the adornment of the window, greenhouse, or conservatory. In the garden Squills should be planted freely, either in small beds by themselves, as an edging or carpeting to other spring bulbs, or as a groundwork to deciduous shrubs.

Selection of Scillas.

bifolia, blue; several varieties, notably alba, rosea, Pink Beauty, and White Queen.	Hispanica, blue; also white, rose, reddish, and striped varieties.
festalis, blue; the Bluebell, of which there are white and rose coloured forms.	Lilio-hyacinthus, blue and purple.
	Peruviana, lilac; alba and Hughii are respectively white and red tinted.
	Sibirica, blue.

Chapter XLVII.—Snowdrops.

THE poems that have been written in praise of the Snowdrop all urge upon us its chaste purity and sweet refinement. It, however, needed not the poets' lays to tell us of its beauty, and of the never-failing hearty welcome which awaits it in the spring as an augury of the year's awakening. In wood, copse, dell, and hedge-row, in some parts of the country, Snowdrops grow in thousands, and the ground is literally clothed with the pure white, fragrant blooms.

In the semi-shaded corner of the rural garden Snowdrops flourish splendidly, especially where the soil is of a fairly strong nature; but in small gardens it cannot be said for the Snowdrop that it is an unqualified success, though in some it is apparently no trouble at all to establish. Occasionally, where the more graceful single Snowdrop will not grow, the double variety may be planted with a fair hope of satisfactory results.

The several species of *Galanthus* should be much more extensively planted, as they are most beautiful in the spring and summer, and provide a feature in gardens that no other plants, bulbous or otherwise, can afford. Some of them resemble the common Snowdrops in all except size, while others have exquisite markings of soft yellow or yellowish green on the ground of snowy whiteness. With increase in size many plants deteriorate in refinement, but this is not the case with the large Snowdrops, which are equal in this respect to the smaller sorts.

The Snowflakes, or, to speak quite correctly, the Leucojums, bear a close resemblance to the Snowdrops, from which, however, they are perfectly distinct, being larger in all their parts, and having rather less of the true Snowdrop's exquisite refinement. They will be found dealt with under Leucojums.

Selection of Snowdrops, or Galanthus.

Elwesii, white, varies in size. The varieties Whittallii and robustus are beautiful.	and double. Some of the best are imperati, Octobrensis, flavescens, and Melvillei.
nivalis, the common Snowdrop, of which there are several forms in addition to the ordinary single	plicatus, white. The Crimean Snowdrop is very handsome.

This is giving only the smallest selection, and there are, of course, many others of decided merit, both in species and hybrids, but those named will suffice, except in gardens where a speciality is made of this family.

Chapter XLVIII.—Sparaxis.

ONCE upon a time Sparaxis were quite popular, and there are signs of a returning favour. Half hardy, like their allies the Ixias, these natives of South Africa require similar conditions to induce them to flower freely. They all make exquisite pot plants, and the little trouble necessary to ensure a bright display is amply repaid in April and May. With these, as with Ixias, some of the older gardeners prefer to wait until February before planting in the open, and this plan has much to recommend it, especially in the less favoured districts. Where pot culture is followed the bulbs are best potted in batches from September to December.

Selection of Sparaxis.

Fire King, scarlet and black.	Queen Victoria, white, yellow, and black.
Garibaldi, crimson and maroon.	tricolor, orange and black.
grandiflora, purple and white.	Victor Emmanuel, red and yellow.

Chapter XLIX.—Tigridias.

SOBER truth compels us to state that while the Tiger Flowers are gorgeously beautiful they are not really hardy, and though they may be successfully cultivated in a cool greenhouse, or even in a cool frame, in a sunny position, the lovely flowers are so evanescent

that one cannot conscientiously recommend them as greenhouse subjects. Light sandy soil suits them whether they are grown in pots or well drained, sunny borders. In some southern gardens a place may be found for them at the foot of a wall, in a position like that advised for the Belladonna Lily. April is the month for planting, and 3 inches is a sufficient depth for the bulbs. Dry leaves make a suitable winter covering for Tigridias grown out of doors.

Pavonia, orange, yellow,
and crimson. Numerous
varieties, ranging from
white to deep yellow.

Pringlei, scarlet, orange,
and crimson.
violacea, rosy purple, ten-
der.

Chapter L.—Triteleias.

RANGING from only 3 inches in aurea to 1½ feet in laxa, these Liliaceous plants are eminently suitable for such narrow warm borders as are frequently to be found at the foot of a greenhouse wall. The position must be a sunny one, and the soil light, if the highest success is to be obtained. This advice is all the more necessary because in wet winters the bulbs are very liable to decay if the soil be heavy. Moreover, in a retentive soil the bulbs do not ripen properly after the leaves have died down, and consequently flowers are either absent or poor the following season, provided the plant survives at all. Lifting and planting must be done when the bulbs are quite at rest; the stronger growers will naturally require a little more room than the dwarf ones, but in all cases a depth of 3 inches will be ample.

aurea, yellow.
laxa, blue.

uniflora, lilac.

Chapter LI.—Tritonias.

In this we have another genus of Cape bulbs, closely related both to the Ixias and Sparaxis on the one hand and to the Montbretias and Crocosmias on the other. Tritonias are less hardy than Ixias, and, except in the summer months, must have frame or greenhouse protection; in every other respect the advice given for Ixias should be followed. Mixed varieties, as now supplied by the leading bulb dealers, will meet the requirements of most folk, but for those who desire named sorts the following is a good selection:—

Bella, blush.
crocata, orange.
elegans, orange cerise.

Eleonore, buff.
Laura, salmon.
speciosa, orange scarlet.

Chapter XII.—Tropeolums.

THOSE great garden favourites the “Nasturtiums” have, by reason of their easy culture, variety of colouring, and widespread popularity, pushed the majority of perennial Tropeolums out of gardens. Several of the finest of these perennials have tuberous or thickened rootstocks, and therefore they are here brought under the broad category of “bulbs.” Propagation is generally effected by division of the roots or by seeds sown in gentle heat in the spring; several may also be increased by cuttings. Taken as a class they favour a light sandy loam, but *speciosum* enjoys moister conditions of soil and atmosphere than the others, and as a consequence it grows with greater luxuriance and blooms with a greater freedom in Scotland than in any other part of the kingdom. It will succeed in the South, but as a rule it needs a lot of coaxing, as does many another beauty. Sometimes the grower tires of coaxing before the Flame Flower makes up its mind to “be good”; then follows a season of comparative neglect, and it may happen that, like a fickle woman, the plant sets out to win back the affection it once scorned. When this occurs the best thing to do is to do nothing, and if this lovely native of Chili takes possession of a favourite tree or shrub and throws over it a mantle of delicate greenery studded with jewels of scarlet, then accept the gift of the gods with thankfulness.

On the other hand we have *polyphyllum*, also a Chilian plant, but with totally different tastes from *speciosum*. It loves the sunniest place in the garden, and if this also be the driest place so much the better, provided there is a fair depth of soil. The prostrate habit of this species makes it suitable for a rock garden or for the adornment of a sunny bank.

Two of the selected species can only be regarded as half hardy—these are *tricolorum* and *tuberosum*, and in dealing with them it is a good plan to lift and store the roots away from frost each winter. Both these, as well as *Jarrattii* and *pentaphyllum*, pay for greenhouse culture. Rich sandy soil and large well-drained pots will meet their needs, but they must be provided with wires or a balloon trellis to climb upon. A bright position, a good supply of water while in full growth, and an absence of water during the resting season are points to be observed by the grower of tuberous-rooted greenhouse Tropeolums.

Selection of Tropeolums.

<i>Jarrattii</i> , orange scarlet and yellowish brown.	<i>speciosum</i> , vermilion.
<i>pentaphyllum</i> , greenish purple and scarlet.	<i>tricolorum</i> , scarlet, yellow and black.
<i>polyphyllum</i> , bright golden yellow.	<i>tuberosum</i> , red and yellow.

Chapter LIII.—Tuberoses.

AFRICAN Tuberoses are purchasable in early autumn; they grow taller than the American variety, which is seldom ready for distribution before December. In both cases the cultural requirements are similar. Five- or 6-inch pots suffice for one bulb. Crock the pots well, and pot firmly in a compost of 2 parts fibrous loam, 1 part sifted decayed cow manure, and sand as needful. As it is highly desirable no water be given until growth commences, the soil must be fairly moist at potting time. Remember the Tuberose is half hardy, and that, although it responds readily to forcing, strong heat is only needed to obtain early flowers. A cold frame or pit will afford sufficient protection for some time after potting, but frost must be excluded, and it is safer to house the plants during winter. Plunged where there is a bottom heat of from 60° to 70° Tuberoses are quickly brought into bloom, provided they are well rooted and have already started to grow.

Double African, white, double, sweet scented, 5 feet.	The Pearl, white, double, very fragrant, 3 feet.	tuberosa, white, single, not nearly so much grown as the double forms.
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Chapter LIV.—Tulips.

COUNTLESS thousands of the bright, attractive looking bulbs find their way into this country from the sandy lands of Holland, and we appreciate them. But we find pleasure in the fact that the bulb productions of the Green Isle have no superiors.

Selections of Tulips.

Selection of Single Dutch Tulips for Bedding.

Arms of Leyden, white, striped rose.	Empress of India, rich orange.	*Proserpine, rich rose, superb.
Artus, scarlet.	Globe de Rigaud, dark slate and white.	Queen of the Violets, pale violet.
Brutus, orange crimson.	Grace Darling, orange scarlet.	Rosa Mundi, rose purple.
Canary Bird, yellow, early.	*Joost van Vondel, crim- son rose, pencilled white.	*Rose Gris-de-Lin, rose and white.
*Chrysolora, yellow.	*Keizer's Kroon, scarlet and yellow; most brilliant.	Royal Standard, white, pencilled rose.
*Cottage Maid, rose, shaded white.	La Reine, white, tinged rose.	*Thomas Moore, orange.
Couleur Cardinal, rich red.	Pink Perfection, pink.	*Van der Neer, violet purple.
Crimson King, scarlet crimson.	Pottebakker, scarlet.	*Vermilion Brilliant, orange scarlet.
*Duchesse de Parme, orange red, edged yellow.	Potter, violet red.	Yellow Prince, fragrant, yellow.
*Dussart, deep crimson.		*White Swan, white.

The varieties included in the foregoing list flower almost simultaneously, and a grower may select those which meet his requirements in regard to colour. The best twelve are marked with an asterisk.

Double Dutch Varieties.

Gloria Solis, reddish brown, edged yellow.	La Candeur, white.	Tournesol, red and yellow
Imperator rubrorum, crimson scarlet.	Princess Alexandra, red, margined yellow.	Tournesol, yellow. Yellow Rose, yellow.

Tulips for Pots.

Admiral Reinier, pink, striped white.	*Hector, orange scarlet, edged yellow.	* Ophir d'Or, golden yellow.
*Bride of Haarlem, white, feathered crimson.	*Joost van Vondel, white.	Pottebakker, white.
*Cramoisie Superbe, cerise	King of the Yellows.	Princess Helena, pure white.
*Defiance, crimson, striped gold.	Koh-i-Noor, deep scarlet.	* Queen of the Netherlands, rosy white.
*Fabiola, purple rose, feathered white.	*La Riante, deep rose.	Rose Aplatie, rose and white.
*Goldfinch, pale yellow.	La Belle Alliance, brilliant scarlet.	Rouge Luisante, deep rose pink.
Grand Duchess, pure white.	La Tendresse, soft rose.	Van Berghem, rose pink.
	* Le Matelas, white, flushed rose.	
	L'Immaculée, pure white.	
	*Maes, dazzling scarlet.	

In the case of the varieties mentioned as especially adapted for pots the best are designated by an asterisk.

Tulips for Forcing.

Duc van Thol, red and yellow.
„ crimson.
„ scarlet.
„ white.
„ yellow

Variiegated-leaved Tulips.

Feu de l'Empire, scarlet.	Lac van Rhyn, rose violet,	Yellow Prince, yellow.
Purple Crown, crimson.	edged white.	Yellow Rose, yellow.
Rex rubrorum, rosy crimson.		

Darwin Tulips.

These provide late flowers on very long stems, which have substantial value for cutting purposes, as well as for the adornment of the garden. If the bulbs are planted in clumps of about one dozen, they look magnificent in May.

Clara Butt, soft salmon rose.	Mrs. Krelage, delicate rose, broad, blush rose margin.	Rev. H. Ewbank, pale heliotrope.
Early Dawn, rosy violet, tinged blush.	Pride of Haarlem, salmon cerise, shaded scarlet.	Salmon King, salmon rose.
Glow, vermilion cerise.	Queen of Brilliants, deep salmon rose.	Suzon, flesh rose, blue and white centre.
Loveliness, warm rose pink		The Sultan, maroon black.
Marguerite, exterior blush, interior rose pink.		

Selection of Tulip Species.

acuminata, red.	Billietiana, yellow.	elegans, red, yellow eye.
Australis, yellow, suffused red.	Clusiana, white and red, black base.	Gesneriana, bright red.
Batalinii, lemon yellow.	Didieri, red, black blotch.	Greigii, brilliant orange scarlet; inconstant.

Selection of Tulip Species (continued).

Kaufmanniana, white,	macrospela, crimson,	saxatilis, purple and
yellow, and red.	black blotch.	mauve.
Kolpakowskiana, yellow	oculus-solis, red, black	suaveolens, red and yellow.
or scarlet.	blotch, yellow edge.	low.
Leichtlini, pink and white.	primulina, yellow and red.	sylvestris, yellow.
Libanotica, purple.	retroflexa, yellow.	violacea, reddish mauve.

Florists' Tulips.

These constitute the aristocracy of the Tulip family. In the different varieties we may find the most exquisitely delicate colours, as well as hues that rival the Parrot flowers in the gorgeousness of their beauty, and no matter to what extreme we go there is always the very essence of refinement enveloping the flower. Whether the variety belongs to the Bizarre, the Byblemen, or the Rose section, it is sure to be of the same characteristically refined type. Let it not be thought that all are of equal merit, for such is by no means the case, but in the very choicest forms, such as are embodied in the subjoined lists, all the best points are in conspicuous prominence.

*Selections of Florists' Tulips.**Bizarres.*

Colbert, fine for the garden, but not for show.	Lord Lilford, good when feathered, colour sometimes runs.	Sam Barlow, superb sometimes feathered, and at others feathered and flamed.
Dr. Hardy, seldom seen with feathering only.	Lord Stanley, almost constant, generally finely feathered and flamed.	Sir Joseph Paxton, an old favourite, very showy, and generally well marked.
General Grant, splendid feathering.	Masterpiece, sometimes a good feathered flower, but generally smudgy; a favourite with exhibitors.	Sulphur, sometimes good, sometimes smudgy, fine for the garden, sweetly scented.
George Hayward, fine for the garden, too heavy for show.		
James Wild.		
Lord Frederick Cavendish, inclined to be heavy.		

Byblemens.

Adonis, fine light flamed and feathered.	Mrs. Jackson, fine for the garden, not for exhibition.	Proserpine, finely feathered.
Bessie, good when light, often heavy.	Mrs. Pickersgill, sometimes good, base rather yellow, requires bleaching.	Talisman, fine when well broken.
Duchess of Sutherland, almost constant, finely feathered and flamed.	Princess Royal (Queen of May), fine for the garden, too long for show.	Trip to Stockport, good when light, often smudgy.
Elizabeth Pegg, nice when feathered, often smudgy		Wedding Coat, almost constantly feathered, small, dwarf.
Friar Tuck, generally good.		

Roses.

Aglaia, large, good for the garden, often too heavy for show.	Annie Macgregor, one of the best, generally good in both feathered and flamed forms.	Comte de Vergennes, usually feathered, and fairly constant, not of perfect form.
Anastasia, good, often too heavy for show.		Heroine, good feathered or flamed.

Roses (continued).

Industry, occasionally well feathered, no use flamed.	Mabel, fine both feathered and flamed.	Mrs. Lee, good feathered, fairly constant.
Kate Connor, good for the garden, too pointed for show.	Modesty, good feathered, often smudgy.	Sarah Headley, often finely feathered.
	Mrs. Atkins, nicely feathered, fairly constant.	

Breeders.

Dr. Hardy, rich Bizarre, getting scarce.	Lady Constance Grosvenor, lovely rose.	Sir Joseph Paxton, deep chocolate brown Bizarre
Annie Macgregor, rose cerise.	Mabel, fine soft rose.	Sulphur, fine Bizarre, very fragrant.
Goldfinder, finest scarlet Bizarre.	Miss Foster, curious Byblemen, flushed chocolate and fawn.	Talisman, good Byblemen, lilac with silvery shade.
James Wild, good Bizarre.	Miss Hardy, good Byblemen, lilac.	William Lea, rich black maroon Bizarre.
Industry, rich rose, not good form.	Rose Hill, handsome crimson rose, getting scarce.	Music, one of the best Byblemens, purple, fine form.
Kate Connor, rose.	Sam Barlow, splendid Bizarre.	
Lord Derby, rose crimson, dazzling white base, fine for the garden, not for show.		

Parrot or Dragon Tulips.

The several varieties that come within the scope of this section are remarkable for the gorgeousness of their flowers, which are exceptionally large and of the most brilliant hues. They are late flowering, and are not usually at their best until the middle or the end of May. The only fault of any moment is that of having flowers too large for the strength of the stems, which renders it somewhat difficult for the full beauty of the blooms to be appreciated unless each one is accorded a small stake.

Café Brun, yellow and coffee.	Markgraaf, yellow, scarlet, and green.	preciosa, dark red and gold.
Feu Brillant, scarlet.	perfecta, striped red and yellow.	
lutea major, yellow.		

Selection of May-flowering Tulips.

Though all of these cannot be embodied in the foregoing sections, they are so strikingly handsome that one can scarcely afford to exclude them from the garden. They produce a flower which has much of the character of the Darwin section; indeed, one may assume that they are closely allied to each other.

Billietiana, yellow, shaded red.	Dainty Maid, white, lilac markings.	Parisian Yellow, yellow.
Billietiana Sunset, bright red and yellow.	Delia, carmine.	Picotée, white, margined cerise.
Bouton d'Or, golden yellow.	Gala Beauty, vermilion and yellow.	Royal White, cream.
Buenaventura, orange, gold striped.	Gesneriana, scarlet crimson (said to be the parent of the Florists' Tulips).	Summer Beauty, lavender rose.

Addenda.

Dielytra spectabilis.—Hardy, thriving best in warm, moist localities, the *Dielytra* is a fine border plant. It does splendidly in the Sister Isle and in Wales; in other parts of the country it is equally valuable. For the decoration of the conservatory in early spring the *Dielytra* is invaluable, while for a fancy vase in the drawing-room it is not easily surpassed, either for grace or beauty, when well grown. Strong crowns lifted in autumn and put in pots of the smallest size that will accommodate them can be easily brought into flower, and as from 50° to 55° is all the heat needed or advised this is essentially a plant for the amateur to grow. Put the crowns in a compost of loam, peat, and leaf soil, and stand them in a cold frame until they are wanted for gentle forcing. Division of the crowns in spring is the best and easiest method of increasing stock.

Galtonia candicans.—This is a very handsome bulbous plant, whose tall spikes of creamy white bell-shaped flowers are well-nigh indispensable in the border in August. Procure bulbs and plant them 8 or 9 inches deep in any ordinary garden soil, avoiding the use of fresh manure where possible, and when it must be employed keeping it from actually touching the roots. Offsets or seeds, the latter sown in gentle heat, form ready means of increase. This plant is commonly grown under the name of *Hyacinthus candicans*.

Lilies of the Valley.—Cold storage has worked many wonders, and by its application to Lily of the Valley we are able to have the beautiful fragrant bells all the year round. From June to January, and even longer, the nurseryman will supply retarded crowns, and by simply potting or boxing these, and placing them in a temperature of 50° to 55°, excellent spikes are produced in from three to four weeks. Moist atmosphere and total darkness until the spikes are well up are other essentials to good results. But the whole matter is delightfully simple. Unretarded crowns continue the supply, but these are more exacting, and need from 80° to 90° of heat to bring them along satisfactorily. Following these come the clumps imported from Holland or Germany, and they also require plenty of heat and moisture. Out of doors Lily of the Valley is too often left severely alone. The position of the selected plot may be right enough, but subsequent attention is frequently conspicuous by its absence. A partially shaded spot and deeply worked soil, to which plenty of decayed manure and leaf mould is added, will meet all requirements. Plant single crowns in February or March, placing them 6 inches apart. Apply a good top-dressing of decayed manure and leaf mould each autumn, and lift and replant the bed every fourth or fifth year.

Scarborough Lily.—This is one of the most popular plants in cultivation for windows, and some of the finest specimens are to be seen in the cottages of the country. It produces brilliant scarlet flowers in autumn and winter, and should be grown in the best of loam, not being disturbed at the roots oftener than is absolutely necessary. Deficiencies in the food supply consequent upon being grown in the same pots for a considerable period are made up for by the use of liquid manure. Propagation is easily effected by division. The botanical name is *Vallota purpurea*.

Solomon's Seal.—*Polygonatum multiflorum* is a common plant it is true, and one that is a wilding in many parts of the country, but "common" in the sense of weediness it is not. For grace and elegance it is rarely surpassed, and it has a quiet beauty essentially its own. Lift some of the thick spreading root stocks in autumn, and pot them in any kind of light soil; plunge the pots in ashes in a shaded spot and place over them a few inches of cocoanut fibre refuse, and they will be ready when winter comes to respond to gentle forcing. These are for the conservatory, but others may be placed thickly in boxes to provide a beautiful addition to the material available for filling the flower vases. In the open afford the Solomon's Seal a partly shaded place, but it is not at all fussy, and grows almost anywhere if the soil is moist. Divide the roots to increase stock, and plant in October or November, or else wait till March.

Spirea japonica may be treated similarly to *DIELYTRAS*.

Sternbergias.—At one time practically the only member of this genus to be found in gardens was that named *lutea*, but now *macrantha* is coming to the fore. Both are autumn flowering plants, producing rich yellow blooms that are identical with *Crocuses* in appearance. The best soil is a light, sandy loam containing lime rubble, and increase may be effected by offsets. A sunny situation should be chosen.

Watsonias.—Plant the bulbs in a pit or frame having a sunny aspect, and provide them with a mixture of sandy loam and peat in the proportion of 2 parts of the former to 1 part of the latter. Here they can be given all the shelter they need, and may also be fully exposed, as weather permits, between the late spring frosts and the earliest cold snap of autumn. Some protection in the way of mats or dry Bracken will be advisable during severe frosts.

Zephyranthes.—Only one species of Zephyr Flowers, *candida*, is really hardy in this country, which is regrettable, as a goodly number are worthy of cultivation had we but room for them in our greenhouses. It blooms in the autumn, and when once established produces an abundance of charming *Crocus*-like flowers. Spring is the time to plant it, and the bulbs should be put 4 inches deep. The greenhouse *Zephyranthes* flower in spring, and are quite contented with the conditions provided for *Ixias*.

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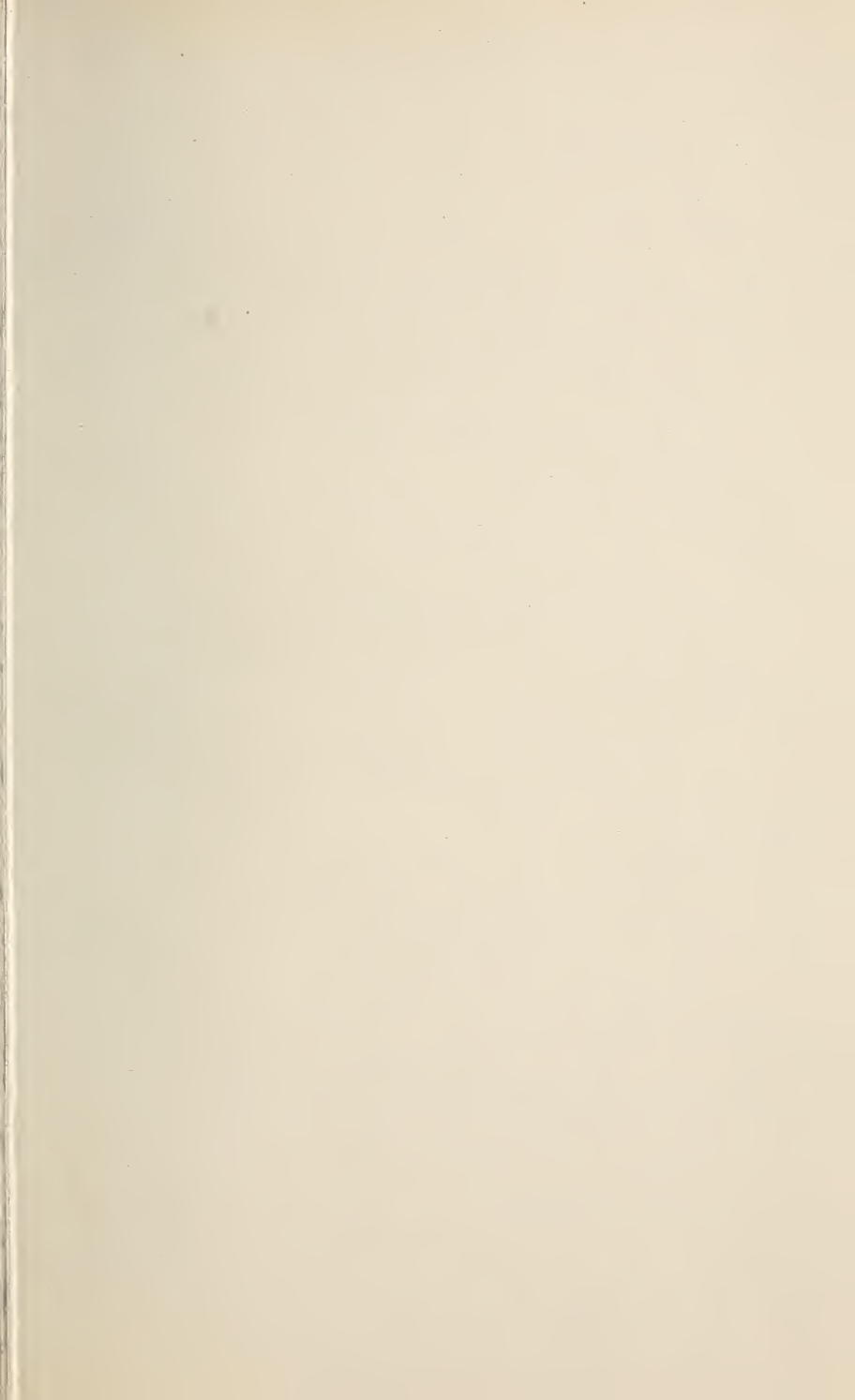
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