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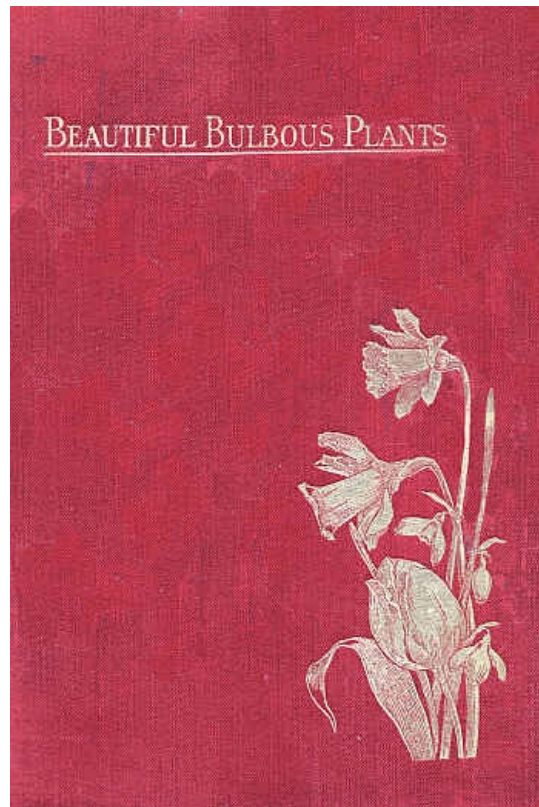
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*** START OF THE PROJECT GUTENBERG EBOOK BEAUTIFUL BULBOUS PLANTS FOR THE OPEN AIR ***



BEAUTIFUL BULBOUS PLANTS FOR THE OPEN AIR.

The "Beautiful" Series.

By JOHN WEATHERS, F.R.H.S., N.R.S.

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Shrubs** for British and Irish
Gardens.
Beautiful Garden Flowers for
Town and Country.

FRONTISPIECE. PLATE 1.



IXIAS (1-6)

BEAUTIFUL

BULBOUS

**FOR THE
OPEN AIR**

PLANTS

BY

JOHN WEATHERS, F.R.H.S., N.R.S.,

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"BEAUTIFUL ROSES." "BEAUTIFUL FLOWERING TREES AND SHRUBS," "BEAUTIFUL GARDEN FLOWERS."

With 33 full page Coloured Plates by Mrs. Philip Hensley.

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PREFACE.

Although many articles have appeared from time to time in the horticultural newspapers and periodicals dealing with various aspects of the subject, it cannot be said that Bulbous Plants have hitherto received the attention they deserve in gardening literature. This volume therefore appears at an opportune moment to meet a recognised want, and in fulfilment of the promise made in the preface to "BEAUTIFUL GARDEN FLOWERS."

While Bulbous Plants as a class have been somewhat neglected, it may be noted that one or two families have been dealt with specially in years gone by. In this connection mention may be made of the magnificent "Monograph of the Genus Liliium," by Mr. H. J. Elwes; the "Narcissus, its History and Culture," by Mr. F. W. Burbidge, M.A., and Mr. J. G. Baker, F.R.S.; a "History of the Genus Crocus," by the Hon. and Rev. Dean Herbert, whose original drawings and MS. notes are preserved in the Lindley Library. Mr. Geo. Maw has also dealt specially with the "Crocus"; and more recently the Rev. Eugene Bourne with the "Daffodil"; Miss Jekyle and Mr. Goldring with "Lilies," &c.

A glance at the coloured plates will perhaps be sufficient to give the reader a good idea as to the numerous kinds of Bulbous Plants now grown in gardens, and of the marvellous range of colour to be found in their blossoms. It has not been considered advisable to include in this volume such hothouse bulbous plants as Eucharis, Crinum, Hymenocallis, Pancratium, but only those kinds that are most likely to give general, if not universal, satisfaction when grown in the open air according to the cultural instructions to be found under the heads of the various genera.

In the preparation of this work I have to acknowledge my indebtedness to the Director of the Royal Gardens, Kew, through whose kindness I have had opportunities for examining the bulbs or corms of the rarer plants referred to in the letterpress.

I also owe my best thanks for the specimens kindly supplied to illustrate the work by A. Worsley, Esq., of Isleworth; Messrs. Barr and Son, of Covent Garden; Messrs. Wallace and Company, of Colchester; Messrs. Ware, of Feltham; and Mr. Perry, of Winchmore Hill.

JOHN WEATHERS.

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BEAUTIFUL BULBOUS PLANTS.

INTRODUCTION.

The cultivation of Bulbous Plants has reached a point of popularity at the present day that it has never before attained. And there is every reason to believe that this popularity is increasing from year to year as more people become better acquainted with these plants, and the ease with which the great majority of them may be grown in almost any garden. Indeed there are now so many kinds of bulbous plants that there is no difficulty in making a selection to suit the smallest garden or the most modest purse.

Of course, some kinds, such as Tulips, Daffodils and Narcissi, Hyacinths, Crocuses, Snowdrops, Scillas, Bluebells, Chionodoxas, Grape Hyacinths, Lilies, Colchicums, Gladioli, and Montbretias, will be always probably amongst the first favourites with garden lovers. But there is no reason why the Mariposa Lilies and Star Tulips, the Brodiaëas and Millas, the Sternbergias and Fritillarias, and many others should not in the course of time become almost equally popular when they become better known.

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Some kinds of bulbous plants have been known in British Gardens—and no doubt in continental ones also—ever since such a thing as gardening proper came to be distinguished from mere agriculture. Our native or naturalised bulbs—such as the Snake's Head Fritillary (*Fritillaria Meleagris*), the Yellow Star of Bethlehem (*Gagea lutea*), as well as the white ones (*Ornithogalum nutans*, *pyrenaicum*, and *umbellatum*), the Autumn Crocus (*Colchicum autumnale*), the Lent Lily or Daffodil (*Narcissus Pseudo-Narcissus*), the Snowdrop (*Galanthus nivalis*), the Snowflake (*Leucojum vernum*), the Grape Hyacinth (*Muscari racemosum*), the Squill (*Scilla verna*), and the Bluebell (*S. festalis*), the Martagon Lily (*Lilium Martagon*), and the [Wild Tulip](#) (*Tulipa sylvestris*) have been grown as garden plants for 400 years or more.

The great monastic establishments were the seats of gardening as of learning, and it is in connection with them we find the first traces of bulbous or any other plants being intelligently cultivated. Besides the plants mentioned, our earliest garden records show that such bulbous plants as the Dog's Tooth Violet (*Erythronium Dens-Canis*), the Crown Imperial (*Fritillaria imperialis*), *Gladiolus communis*, the Garden Hyacinth (*Hyacinthus orientalis*), the Madonna Lily (*Lilium candidum*), the Poet's Narcissus and the Jonquil (*N. poeticus* and *N. Jonquilla*), the Star Hyacinth (*Scilla amoena*), the Lily of the Field (*Sternbergia lutea*), and Gesner's Tulip (*T. Gesneriana*), were among the first kinds cultivated from the beginning of the 16th century, and they are all more popular to-day than ever. Following these we find such Tulips as *suaveolens* and *Clusiana*, the yellow-flowered Onion (*Allium Moly*), the Cloth of Gold Crocus (*C. Susianus*), the Byzantine Gladiolus (*G. byzantinus*), and others in the 17th century. The beginning of the 18th century saw the introduction to our gardens of the Belladonna Lily (*Amaryllis Belladonna*), and later on the Babianas, Ixias, and other Gladioli like *blandus*, *cuspidatus*, and *cardinalis*.

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It is to the 19th century, however, that we owe not only many introductions of new kinds, but also the development of the great enterprise that has been shown in their extensive cultivation, and the natural methods of using them in the garden.

To this period, and especially to the latter half of it, belong most of our fine Lilies, Bulbous Irises, Mariposa Lilies and Star Tulips, Brodiaëas, Chionodoxas, Scillas, and American Dog's Tooth Violets. It has also been the age when the florist's varieties of Gladiolus, Daffodils, Tulips, Hyacinths, and Crocuses have been brought almost, if not quite, to the acme of perfection by intelligent cultivation and careful selection.

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All this has led to the growth of many kinds of bulbous plants having become a huge industry. Dutch bulbs have for many generations been famous, and many kinds will, no doubt, continue to retain their hold upon the public owing to the undoubted advantage of the climate under which they are grown. But experience has proved that such bulbous plants as Tulips and Daffodils at least can be grown equally well in some parts of the British Islands, notably in Cambridgeshire, Lincolnshire, the Scilly Isles, and parts of Ireland. It has been stated that over five hundred millions of bulbs are used for decorative purposes in Great Britain alone every year, and that the value of imported bulbs ranges from £5,000,000 to £8,000,000 annually.

The growth of Daffodils and Narcissi alone in the [Scilly Isles](#) within the past forty years has been nothing less than phenomenal. Mr. T. A. Dorrien-Smith, of Tresco Abbey, has stated that the first

lot of flowers was sent to Covent Garden Market about 1865, and realised £1. It was not, however, until about 1880 that Daffodil growing in these Islands became at all remunerative, and some idea of their growth since then may be gained from the fact (vouched for by the same authority) that 65 tons of flowers were exported from the Scilly Isles in 1885, 85 tons in 1886, 100 tons in 1887, 188 tons in 1888, and 198 tons in 1889; and on one day alone—the 25th February, 1896—30½ tons of Narcissi, comprising 3,258,000 blooms in 4,849 boxes, were shipped to Penzance for market. Cultivation on such an extensive scale, of course, means a considerable reduction in price, and, from a commercial point of view, ordinary Daffodil growing may be said to have reached bedrock prices a long time ago.

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However, of late years, our American cousins have taken a keen interest in the importation of bulbs from Europe, and as gardening is a comparatively new industry in that extensive country, we may expect that it will afford a good market for many years to come. Not many years ago certain kinds of Tulips, Daffodils, Hyacinths, &c., were a drug in the English markets, and could be had at a very low price. Since, however, the Americans have become fond of bulb-growing, these particular kinds have advanced considerably in price, in some cases 100 to 150 per cent., because it so happened they were just the sorts that were liked on the other side of the Atlantic.

GEOGRAPHICAL DISTRIBUTION.

It is curious to note in this respect that almost every part of the temperate and sub-tropical regions of the globe have contributed some class of bulbous plants now to be found in cultivation. Central and Southern Europe and Northern Africa have supplied us with various Daffodils and Narcissi, Tulips, &c. From Asia Minor and Turkestan, the Chionodoxas, and many bulbous Irises and Fritillarias have been introduced. California and other parts of North America have produced the Mariposa Lilies, all the Dog's Tooth Violets, except the common British one, the Brodiaeas, &c.; while South Africa has given us the Gladiolus, Montbretias, and Tritonias, Crocosma, and other beautiful plants. And the Lilies, which form a large group in themselves, are to be found in almost every temperate climate north of the equator (see [page 95](#)).

[Pg 6]

When these facts are borne in mind, the reader will readily understand the necessity of trying to imitate, as far as possible, in our own climate the various natural conditions under which these plants are found.

PLATE 2.



SCILLA SIBIRICA MULTIFLORA (7)
GALANTHUS NIVALIS (8)
CHIONODOXA LUCILLÆ (9)
HYACINTHUS AZUREUS (10)

SOMETHING ABOUT BULBS AND CORMS.

There is so much confusion of thought as to what a "bulbous" plant really is, that it may be as well at the beginning of this volume to endeavour to clear up the haziness that exists in regard to the matter. It seems to be taken for granted that any plant with a swollen or thickened stem or rootstock is a "bulbous" one. And this impression is no doubt confirmed when one consults the bulb catalogues issued by nurserymen. In these publications—chiefly, no doubt, for the sake of convenience and to avoid unnecessary extra expense in printing—a large number of plants are enumerated as if they were really bulbous. It is, therefore, not at all unnatural that the amateur should come to the conclusion that everything mentioned between the covers of a bulb catalogue should be truly bulbous in nature. Even some publications on bulbous plants have adopted the same loose nomenclature. Thus we find such non-bulbous plants as Aconites, Anemones, Dahlias, Dicentras, Day-Lilies, Hepaticas, Solomon's Seal, Astilbe japonica, Tropæolums, Lily of the Valley, Corydalis, Torch Lilies, Pæonies, Christmas Roses, and many others described as "bulbous" plants, while some that are really so, and worthy of cultivation, are not even mentioned.

[Pg 7]

[Pg 8]

Some of the plants referred to above have thickened stems or roots, and will be found described in their proper places in the companion volume to this—"BEAUTIFUL GARDEN FLOWERS." They belong to several different families of plants. True bulbous plants, however (with which we may include those having "corms"), are confined to very few families. Indeed, they are restricted to one of the two large groups of flowering plants, viz., that in which the leaves usually have parallel veins, and the flowers have their parts in circles of three or six. This group of plants is known to botanists as "monocotyledons," and is still further distinguished by having only *one* seed-leaf, as may be seen when the seeds of any of them sprout, as shown in the Tulip, [p. 35](#).

It is within the limits of this definition, therefore, that all the plants described in this book come. They all have parallel-veined leaves, and the parts of their flowers are in "threes" or "sixes," as may be seen by consulting the coloured plates.

PLATE 3.

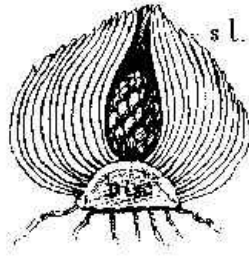


**BULBOUS IRISES I. HISTRIO, (11) I.
BAKERIANA, (12). I.
KOLPAKOWSKYANA, (13) I.
DANFORDIÆ, (14) I. PERSICA (15)**

There is an apparent contradiction to this rule in the Daffodils (Narcissi) in which the "trumpet" or "corona" in the centre makes a seventh organ. A similar growth may be seen in such bulbous plants as the Eucharis, Hymenocallis, Pancratium, &c., that are usually grown under glass. This corona is analogous to the ligules or scale-like outgrowths so noticeable on the petals of the Campions (Lychnis), the chief difference being that in the Narcissi the ligules are joined together, become much larger, and often constitute the most attractive feature of the flowers.

[Pg 9]

Definition of a "Bulb."—Perhaps the very best-known example of a true bulb is the common or garden Onion. Another example is shown in the sketch of a Hyacinth and Tigridia.



Tunicated Bulb of Hyacinth in section showing "Disc," and Scale Leaves s. l.



Tigridia Bulb, Showing thick Contractile Roots.

The bulbs of Daffodils, Tulips, Snowdrops, Scillas, &c., all conform very closely to the Onion in structure. It will be noticed that at the base of the Hyacinth, for example, is a flattish or deltoid mass of tissue. This is called the "disc" and is really the stem portion of the bulb. On the upper surface it bears a number of thick scaly leaves packed very close together, and rolled round each other, with the flower-spike in the centre; while from the under surface, the roots emanate when growth takes place. It may be easily imagined by the reader that if the "disc" were drawn out lengthwise, and if a space separated one scale-leaf from another, that the bulb would be very similar in appearance to an ordinary leafy stem. Nature, however, has a certain object in view in modifying the stems and leaves in such a manner that they are tightly packed away when at rest, within a brown protecting coat, so that they resemble the large scale-protected flower-buds that may be seen in winter on Horse-chestnuts, Lilacs, Ash, &c. The thick scale-leaves are really storehouses in which food has been stored up by the larger and broader green leaves that perform the functions of assimilation, respiration, &c., above the ground during the growing period.

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When the bulb begins to grow, the food in the thick scale-leaves is drawn up to supply nourishment to the flower-stem, until the new green leaves can manufacture or elaborate a fresh supply in the sunlight from the raw materials drafted into them from the soil by the roots. Under favourable circumstances more food is elaborated than is necessary for the wants of the plant, and then extra growths or young bulbs called "offsets" are developed at the base, or rather the side, of the older bulb.

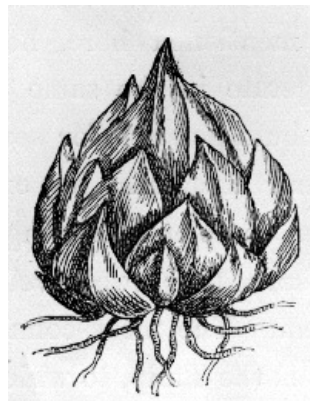
[Pg 11]

It should be mentioned here, however, that all bulbs do not vegetate in the same way. In many cases the original bulb persists for several seasons, as in the Daffodil and Hyacinth, for example; but in others it vanishes completely during the period of growth, and is absorbed, or swallowed up, as it were, by the flower stem. The most common example of this among bulbs is the Tulip, to which more detailed reference has been made at [p. 133](#).

Kinds of Bulbs.—Most true bulbs are constructed like the Onion, Daffodil, Snowdrop, or Hyacinth, in having the scale-leaves rolled round each other, forming different layers or coats. Such bulbs are said to be "tunicated." In the case of the Liliiums, however, the scale-leaves only lap over each other at the edges, and are arranged spirally round the central axis. These bulbs are called "scaly," or "imbricated," and are shown in the annexed sketch on [p. 12](#).

The individual scales are much thicker at the base than at the apex, and in the case of tunicated bulbs, they are also thicker on one side than the other. By this arrangement, the various "coats" can be rolled round each other more tightly, and without wasting any space.

[Pg 12]



Scaly Bulb of Lily.

Definition of a "Corm."—In outward appearance, many corms are so much like bulbs, that the two terms are interchangeable and loosely applied, at least, among gardeners. By cutting a

"corm" through the centre lengthwise, a great difference, however, will be noticed in the structure. In the bulb, the "disc" is small and unimportant, while the scale-leaves upon it are the most conspicuous feature. In the "corm," on the other hand, the "disc" is the all-important feature, and is devoid of any thick scale-leaves upon it. The new growths appear on the top or sides, and the lines round the circumference show where the sheathing papery scale-leaves were attached. In the "corm" then, it is the disc, and not the scale-leaves, that is the great storehouse of food.

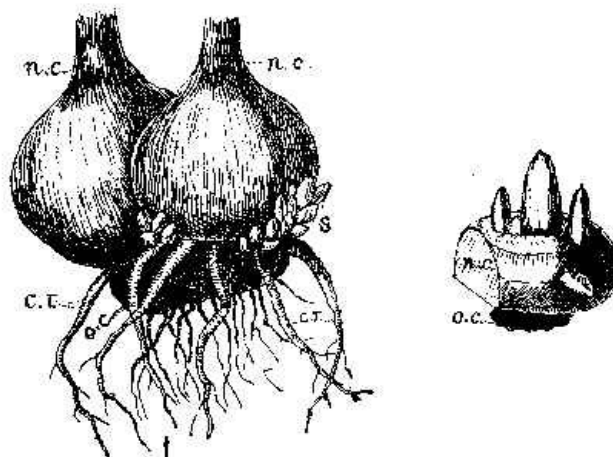
PLATE 4.



**DAFFODILS ELLEN WILLMOTT, 17.
 MDME. DE GRAAFF, 18.
 HORSFIELDI) DAFFODILS ELLEN
 WILLMOTT, 17. MDME. DE GRAAFF,
 18. HORSFIELDI)**

Growth of a Corm.—The vegetation of the corm is very remarkable, and somewhat resembles that of the Tulip. When a corm commences to grow, the reserve material within it is used up for the benefit of the flowers and leaves. The result of this absorbing process is that by the end of the season the old corm has almost vanished, or is reduced to a dry shrivelled, woody, and lifeless mass, incapable of further growth, and attached to the base of the new corms, as shown in the annexed sketches of Gladiolus and Crocus on [page 14](#).

These new corms are the direct result of the work that has been done by the green leaves in the daylight, and after a period of rest, they go through precisely the same process the following season—vanishing themselves, but leaving others behind to carry on the work of producing flowers, and, if possible, seeds.



Gladiolus. o. c. old corm; c. r. contractile roots; n. c. new corms with "spawn" (s.)

Crocus Corm. o. c. old corm; n. c. new corm with

The importance of Green Leaves to Bulbs and Corms. —If the reader wishes to be successful in growing bulbous plants in his garden he must have very great respect for the green leaves of his plants, and always endeavour to keep them in the cleanest and healthiest possible condition. From what has just been said about the production of new bulbs in the Tulip, and new corms in the Crocus and Gladiolus, it is obvious that the leaves play a most important part. Indeed, without their aid there would be neither bulbs nor corms to carry on the work of the plants from year to year. In the form of carbon-dioxide the leaves eat up the carbon and oxygen from the atmosphere. Under the influence of sunlight the gas is decomposed, so that the oxygen is given off again into the air, while the carbon is retained for the production of starch and other materials. These are elaborated in the cells of the leaves, and after undergoing certain changes pass down the stems and are stored up in the bulbs or corms beneath the surface of the soil. It is only *green* healthy leaves that can perform this important work satisfactorily. When the foliage therefore begins to turn yellow and wither, it may be taken for granted that its work for the season is coming to a close, and the bulbs or corms are going to enjoy a well-earned rest. It should, perhaps, be mentioned also that leaves can only become green in day light; and although some bulbous plants like a certain amount of shade, it would never do to exclude the light from them altogether, or even to plant them in places where they could not get an adequate amount of sunshine, or diffused light, during the day. [Pg 14]

SOIL FOR BULBOUS PLANTS.

Comparatively few of the bulbous plants mentioned in this volume will require anything better than ordinary good garden soil that has been deeply dug, contains a certain amount of well-decomposed manure, and is well-drained so that the water freely passes away. Such a soil will give general satisfaction, with the least amount of trouble, especially if it is inclined to be light rather than heavy. [Pg 16]

To secure really first-class results, however, the soil in beds or borders that are to be planted with bulbs should be particularly well-prepared in advance. A heavy soil, that is, one inclined to hold water, and of a clayey nature, will require a good deal more labour to bring it into a proper condition than a soil that is already friable and in a fair state of tilth. The heavy soil should be not only deeply dug to a depth of two feet or more, taking care not to bring the lower layers to the surface in the operation, although they should be turned over and pulverised as much as possible where they are. Plenty of sand or road-grit should be incorporated with a heavy soil, not only to keep it "open," but also to increase its warmth—a matter of some importance in our cold wet winters. The upper layer of soil, say a foot from the surface, may be still further improved by the admixture of old cow-manure and soot. In very bad soils, powdered quicklime may also be added, not only to absorb superfluous moisture, but to render the soil sweeter and more fertile. On no account, however, should fresh, rank manure be dug into the soil just before the bulbs are planted, as the heat and gases generated by its decomposition are often injurious to the extremely tender tips of the young roots. [Pg 17]

PLATE 5.



(DAFFODILS 19. CYCLAMINEUS, 20. TRIANDRUS ALBUS, 21. PRINCESS MARY OF CAMBRIDGE, 22. GLORIA MUNDI, 23. SIR WATKIN)

An ordinary good garden soil—that is, one that is regularly dug, hoed, manured, and cropped with some class of plants—will only need to be well dug for bulbs, and to have some well-decayed manure and soot incorporated with it a week or two before planting. For some bulbs, such as the Mariposa Lilies (*Calochorti*), some of the bulbous Irises, and a few other kinds, it may be necessary to take particular pains with the preparation of the soil for them. Attention has been specially called to plants of this nature, where such has been considered necessary. It should be remembered that when bulbous plants are attacked by fungoid diseases, referred to at [p. 145](#), it is very often the result of a badly prepared soil, and not to any inherent defect in the bulbs.

HINTS TO BEGINNERS.

There is a beginning to everything, and the cultivation of bulbous plants is no exception to the rule. It is probable in many cases that the beginner at bulb-growing falls into precisely the same errors as the beginner with other classes of plants. The most common error of all, perhaps, is that he wants to grow at once every bulbous plant known. He sees a book, like the present one for example, and admires the beautiful pictures of bulbous plants in it. The result may be—and I hope it will be—a keen desire to invest in the bulbs that can produce such charming blossoms. But this keen desire should be tempered with discretion. His garden may be only a small one, and perhaps already stocked with many other plants. As he cannot hope to get the whole of Kew Gardens into it at once, it would be as well to start with only a few *kinds* of bulbs. I do not mean of a *few bulbs* of *many* kinds, as he is almost sure to be disappointed in the results. In these days of imperial thought it is no use thinking of producing an effect in a garden with six bulbs of either Snowdrops, Crocuses, Tulips, or Daffodils. It is as well to think of the larger bulbs like the Lilies and choice Hyacinths in *dozens*; of the medium sized ones like Tulips, Daffodils, Tritonias, and bedding Hyacinths in *hundreds*; and of the smaller ones like Crocuses, Snowdrops, Spanish Irises, Scillas, Chionodoxas, and Bluebells in *thousands*. The dearer and choicer kinds are better left alone, perhaps, until some advance has been made with the others.

[Pg 18]

[Pg 19]

Buying Bulbs.—To buy bulbous plants in dozens, hundreds, or thousands of course means money. The beginner, however, is not advised to buy large quantities of *all* the kinds mentioned to begin with, as the cost might be prohibitive, or the convenience for their proper treatment inadequate. What is strongly recommended, however, is to start with a large number of any one, two, or three kinds as can be afforded one year, instead of frittering away the same amount of money over a few bulbs each of perhaps a dozen different kinds which will fail to produce the anticipated effect later on. It is much better, for instance, to buy, say 100 bulbs of cottage or Mayflowering Tulips, than to invest in 100 bulbs belonging to eight different genera.

The 100 Tulips would make a fine show in the garden, because there would probably be enough of them; whereas the other bulbs, although quite as handsome in their own way would be lost, or at least inconspicuous, owing to the small number of each in flower at the same time.

If only one or two kinds of bulbs can be bought in sufficient quantity each season, with care they can be increased each year afterwards, and need not be purchased again. This will permit of the purchase of a sufficient number of one or two other kinds the following year, and as these will increase and multiply in the same way, there will be quite a large number of excellent bulbs available at the end of a few years. Each season there is a larger and better display than the preceding one, and that is a result very rarely attained, even after several years' labour, and a lot of money has been spent, when the principle of having only a *few* bulbs of *many* kinds is adopted.

If the effect is not produced the first season, enthusiasm is likely to be killed, or the interest in bulb-growing may be seriously diminished.

The beginner is strongly advised to start with such easily-grown and effective bulbs as Tulips, Daffodils, and Spanish Irises, afterwards adding Montbretias or Tritonias, Gladiolus, Lilioms, Chionodoxas, Scillas, Snowdrops, Grape Hyacinths, Crocuses, &c., according to fancy. Of course all these may be started with, but as stated before, each kind should be purchased in sufficient quantity to make a bold and effective display when in blossom.

PLATE 6.



DAFFODILS (24. GRAND MONARQUE, 25. SOLEIL D'OR, 26. WEARDALE PERFECTION, 27. LULWORTH)

A Word of Warning.—Beginners must not run away with the idea that the largest bulbs give the most blossom. In many instances this is very far from being the case—notably with the florists' Hyacinth—which is a most deceptive bulb. Small heavy bulbs are much better than large light ones—that is light or heavy according to their size. In Daffodils, too, there is a good deal of variety in the shape and size of different varieties, some being naturally smaller than others, and yet capable of throwing fine blossoms. All healthy bulbs, no matter to what genus they belong, should be firm and solid, and not soft and pappy to the touch. A distinction must also be made between well-ripened "flowering bulbs," and those often advertised as "planting bulbs." The latter are perfectly sound, but being merely offsets from the "flowering" bulbs, are not likely to flower the first year after planting, although a few of the stronger ones may do so. When one can afford to await a couple of years, "planting" bulbs offer a cheap means of stocking a garden, as a thousand can be purchased for a few shillings.

The other hints, necessary for a beginner, will be found in the following pages attached to the different groups of bulbs or corms he may wish to grow.

HOW DEEP SHOULD BULBS BE PLANTED?

This question has been agitating the minds of gardeners for some considerable time, and has given rise to a certain amount of discussion. Some advocate very deep planting, on the strength of having discovered the bulbs of such plants as Snowdrops, &c., a foot or more beneath the surface of the soil without any decrease in vigour. On the contrary, it has been contended that the plants have shown unusual sturdiness, notwithstanding the amount of reserve material the bulbs must have expended before the leaves were able to reach the light. It is natural that bulbs that are left in beds and borders for a few years without lifting should be found at a greater depth than is generally recommended for the planting of new bulbs. In the course of time the soil is turned up more or less deeply, and any bulbs in it are almost sure to be buried deeper than they were before; or frequent top dressings of soil or manure may have been given, and thus place the bulbs still further from the light. It is possible, however, that bulbs get buried deeply owing to the downward pull of their own contractile roots referred to below.

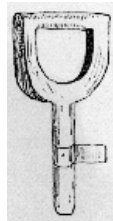
[Pg 23]

Although I am not going to recommend very deep planting, there is one great advantage in having bulbs in the open air well covered with soil, viz., that the temperature of the soil at one, two, or three feet is often as much as 20 degrees higher than it is immediately on the surface during very cold and frosty weather. This is a wonderful provision of Nature for the protection of all kinds of roots and bulbs beneath the soil in winter.

In the following pages the average size of the bulbs or corms of different genera is given. It will be noticed that they vary from half an inch in diameter in some of the smaller Narcissi, to three, four, or five inches in some of the Liliums. Between these two extremes there are nearly all shapes and sizes, and it is not unnatural that the amateur should be somewhat puzzled as to the depth he ought to plant any particular bulb.

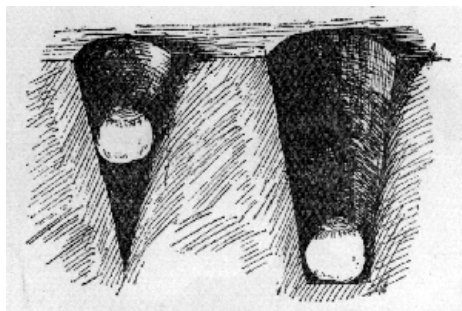
For planting bulbs in the open air, I venture to propound a safe general rule, viz.:—*cover a bulb or corm with about twice its own depth of soil.* Thus a bulb one inch through from top to bottom would be planted about three inches deep, so that it would be covered with two inches of soil. The adoption of this principle means fairly deep planting in the case of large bulbs. There are a few exceptions, however, to this rule, but they have been noted in the proper place.

[Pg 24]



Dibber.

The actual planting of bulbs in formal beds may be done with either a garden trowel or dibber. The trowel is better for the larger bulbs like Liliums, and may of course be used for smaller bulbs if found to be more convenient. The dibber is useful for making holes at very regular distances apart in the lines, and into each hole a bulb may be dropped in, afterwards covering it over with soil.



Wrong and Right way of planting Bulbs with Dibber.

A blunt dibber as shown in the sketch, will be found more useful than a pointed one for the work, although it may not be pushed into the soil so readily. The danger of a sharp-pointed dibber is shown in the sketch. A fairly large bulb is liable to be hung up in the hole as its diameter is greater than that of the dibber at a certain depth. Under these circumstances roots would not be emitted so readily from the base, as when the bulb is resting flat on the bottom of the hole as shown in the sketch to the right.

[Pg 25]

PLATE 7.



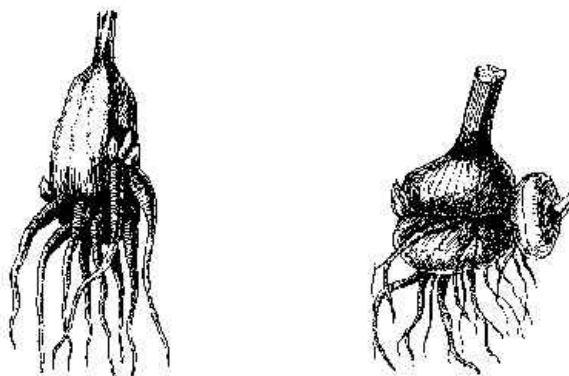
**GARDENIA NARCISSUS (28) POET'S
NARCISSUS (29) HYACINTHUS
AMETHYSTINUS (30)**

THE NATURAL SINKING OF BULBS AND CORMS.

In connection with the question of planting, attention may be directed to a very interesting and remarkable power possessed by the roots of many bulbs and corms. A glance at the sketches of *Gladiolus*, *Tritonia*, *Nothoscordum*, and *Lilium*, will show the reader some thick fleshy roots with conspicuous rings on them. They are readily distinguished from the finer fibrous roots, and, as may be readily supposed, their functions are quite distinct. To thoroughly understand what these thick-ringed roots are for, the reader will remember what has been said at [page 13](#) about the way in which the old corms of *Crocuses* and *Gladioli* disappear, or are surmounted in autumn by new ones. If the plants were not disturbed for several years, one would imagine that as the new corms were always produced *on top* of the old ones, they would sooner or later come through the surface of the soil, and thus run the risk of being either parched by drought, or shrivelled up by the heat of the summer sun; or, again, of being frozen to death in winter. And yet, examination of the corms will show that the new ones are quite as deep down in the soil, if not deeper, than their predecessors. This remarkable state of affairs to preserve what may be called the *status quo* is entirely due to the action of the thick, ringed roots referred to above. These roots usually strike straight down into the soil. When they have gone as far as Nature intended them to, they begin to contract much in the same way apparently as a worm does when going into its burrow, and for this reason they have been called "[contractile](#)."

[Pg 26]

[Pg 27]

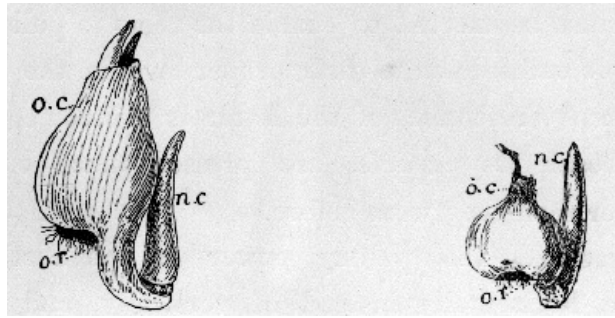


Nothoscordum Bulb. Showing Contractile Roots. Tritonia Corms.

During the process of contraction a tremendous force must be exerted to enable the roots to pull the corms or bulbs down to their proper level in the soil. The passive resistance of the latter is overcome, and as a result its particles are pressed much closer together than they were before.

Sometimes this pulling power of the roots is exerted horizontally instead of vertically, and this accounts for the spreading of many bulbous plants like Tulips, Grape Hyacinths, &c., over a large area in the course of a few years when left undisturbed.

Bulbous Plants without Contractile Roots.—Some bulbous plants have not the advantage of contractile roots to keep them down in the soil, so they must secure this desirable end by different means.



Colchicum. *o. c.* old corm; *n. c.* new growth; *o. r.* old roots.

Bulbocodium. *o. c.* old corm; *n. c.* new growth; *o. r.* old roots.

A glance at the sketches of Colchicum and Bulbocodium will show a peculiar method of growth. The new corm instead of being produced on top of the old one, is developed at the side. Note, however, that the new corm is not on the same level as the old one. That would be no advantage whatever. Therefore it takes, as it were, a step *downwards*, so as to be well out of reach of mowing machines, rats, and mice, and other enemies, and also probably because it knows it will be much warmer in winter when several inches below the surface. The same principle seems to be employed by the bulbs of the Dog's Tooth Violets (*Erythronium*), as may be seen from the sketch—the new bulb to the right being distinctly lower than the older one to the left.

[Pg 28]



Erythronium.

PLATE 8.



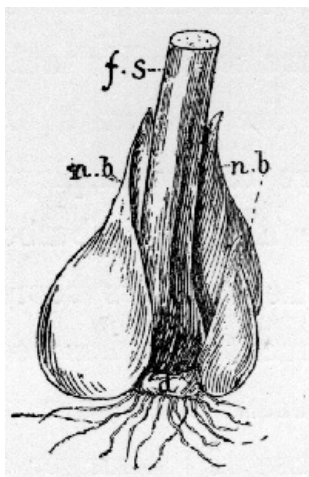
PROPAGATION OF BULBOUS PLANTS.

Perhaps there is no one class of plants that have so many ways of being easily increased as bulbous plants proper. Some kinds, *e.g.*, Liliums, Alliums, may be increased in four different ways —from offsets and "spawn," scales, bulbils, and, last of all, seeds. [Pg 29]

Offsets.—The great mass of bulbous and cormous plants, however, are so readily multiplied by detaching the offsets from the parent bulb or corm, that the other methods are rarely employed except by trade growers. Nearly all hardy bulbous plants produce offsets freely. These offsets represent a superabundance of nourishment that has been elaborated in the leaves, and very often there are several smaller ones attached to the base of the larger ones that have been produced in precisely the same way.

In the case of Daffodils, Tulips, Hyacinths, Crocuses, Gladiolus, and a host of others, the new offsets are pressed against the sides or on top of the older ones. In the drawing of the Tulip ([p. 30](#)), three new bulbs are to be seen surrounding all that is left of the old bulb. This latter has practically vanished up the main axis from the disc to produce flowers and leaves—hence it follows that the Tulip bulb somewhat resembles the corm in its vegetative characters. The bulbs taken out of the soil in early summer are not those that were planted the previous autumn. [Pg 30]

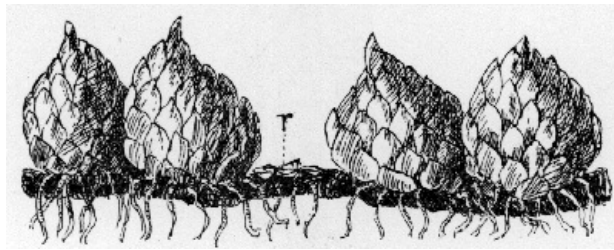
Besides "offsets," some plants produce numerous small vegetative bodies called "[cloves](#)" or "spawn." These are shown in the drawing of the Gladiolus ([p. 14](#)), where two strong flowering corms have been developed on top of the old shrivelled one. At the base of each of these are numerous small outgrowths among the contractile roots. If these growths or spawn are taken off and stored in sandy soil until spring, they may then be planted in special beds, and in the course of two or three years will reach the flowering size.



Tulip. d. disc of old bulb; f. s. flower and leaf-stalk which have eaten up old bulb; n. b. new bulb and offsets.

The Liliums are a large and interesting group of bulbous plants. Many of them produce offsets freely round the base of the old bulb. There are several species, however (*e.g.*, *canadense*, *Grayi*, *maritimum*, *pardalinum*, *Parryi*, *superbum*), which have creeping rootstocks or rhizomes, and the new offsets are produced along these at intervals as shown in the drawing. [Pg 31]

Division.—Bulbs or corms are rarely cut up for purposes of propagation. The best example in which this method of increase is practised is the Gladiolus. The larger corms, if they show two or more crown-growths, may be carefully cut down between them with a sharp knife. The cut surfaces may be dipped in soot, not only to dry it more rapidly, but also to prevent any stray spores of fungoid diseases from germinating.

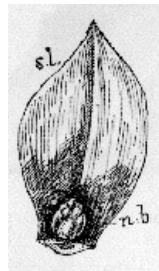


Rhizome (r) with Offsets.

Leaf-Scales.—The thick, fleshy, deltoid scales of many of the *Liliums* will develop buds at the base, as shown in the drawing, when detached and inserted almost vertically in sandy soil. In about three or four years flowering bulbs can be produced by this means.

A somewhat analogous process is adopted with Hyacinths. The old bulb is slashed across the base of the disc two or three times into the fleshy scales. The cut surfaces dry up, and by-and-bye small buds or bulblets, as shown on the sketch of the Lily scale, make their appearance. In due course these bulblets are detached and planted in light sandy soil. The propagation of the florists' varieties of Hyacinths by this means is not altogether satisfactory, as the old bulbs themselves undergo a deterioration in our variable climate.

[Pg 32]



Scale leaf (s. l.) of Lily bulb showing new growth (n. b.) at base.

PLATE 9.



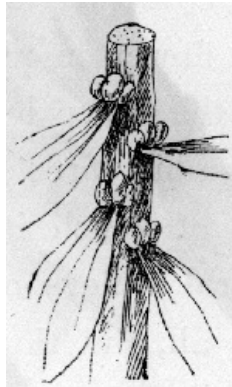
TULIPS (35-38)

Bulbils.—These are vegetative growths—neither seeds, bulbs, nor offsets—that appear in the axils of the aërial leaves, as shown in the sketch. Many *Liliums*, like *bulbiferum*, *tigrinum*, *speciosum*, *Leichtlini*, and some of the *Alliums* produce them with great regularity. It is thought that bulbils are borne by some plants and not others, because the conditions for the fertilisation or ripening of the seeds are not favourable. In such cases, therefore, Nature has provided such plants with this means of reproduction by bulbils, rather than allow them to run the risk of dying out altogether. In Kerner and Oliver's "Natural History of Plants" it is stated that "There are two forms of Orange Lily indigenous to Europe. One (*Lilium croceum*), occurring especially in the

[Pg 33]

Pyrenees and South of France, almost always ripens fruits and forms no bulbils in its leaf-axils. The other (*Lilium bulbiferum*), found in the valleys of the Central and Northern Alps, hardly ever fruits, but is characterised by the bulbils it produces in the axils of its leaves; bulbils which disarticulate in autumn and are scattered by the wind. But there is no difference noticeable in the structure of the flowers in these two Orange Lilies, and it is difficult to explain their difference in mode of propagation, save on the assumption that in the regions where *Lilium bulbiferum* grows those insects are wanting which should convey its pollen from flower to flower. As the Orange Lily possesses no arrangements for autogamy (*i.e.*, self-fertilisation), no fruits are formed in the absence of insect visits. It appears that this plant has lost the capacity for autogamy; at any rate, if a stigma be pollinated with pollen from the same flower on plants in a garden, no result follows. On the other hand, offshoots in the form of numerous bulbils are produced by *Lilium bulbiferum*, by means of which it is propagated and dispersed. In several valleys of the Central Alps it does not flower at all, and thus obviously depends entirely upon its bulbils for propagation."

[Pg 34]



Bulbils in leaf-axils.

The bulbils should not be detached from the stems until the latter are quite ripe, and the foliage shows signs of withering. They may be sown as if they were large seeds. They possess the advantage over seeds, however, inasmuch as they produce flowering bulbs two or three seasons before the bulbs from real seeds come to maturity.

Bulbous Plants from Seeds.—The would-be raiser of bulbous plants from seeds must be gifted with a good deal of patience, and be systematic in his methods, otherwise he will find it is no sinecure to wait from five to ten years before a flower appears from the seeds he sowed at the beginning of those periods. Even when the blossoms do appear, the great majority of them are likely to be inferior in almost every way to their progenitors. The raising of bulbous plants from seeds, therefore, is not likely to find many enthusiastic disciples among amateur growers, who, as a rule, are content to cultivate the varieties that have been evolved by generations of gardeners. Under these circumstances it is most fortunate that bulbous plants can be so readily multiplied by offsets. Of course, in large gardens and nurseries, where there is a trained staff of men, it is a comparatively easy matter to save and sow a certain quantity of seeds each year. After the first period of waiting is over, each season sees a fresh lot of seedlings burst into blossom. Any particularly fine forms are marked, and afterwards increased by means of the offsets or bulbils.

The annexed drawing shows a seedling Tulip. The germination is very similar to that of the common garden Onion. The swollen portion at the base represents the first stage in the development of the bulb, and each year for six or seven seasons sees it increase in size, and ultimately large and strong enough to blossom.



[Pg 35]

Sowing Seeds.—The seeds of all the perfectly hardy bulbous plants may be sown in the open air, in beds specially prepared for the purpose. The soil should be a light sandy loam with a good sprinkling of leaf-mould in it. The "drills" may be drawn about one inch deep, and as the seedlings in many cases are left to look after themselves until they bloom, the seeds should be sown very thinly—two or three inches apart—so as to allow for future development. It would scarcely be wise, in the case of choice or rare varieties, to trust the seeds to the open air. They may, however, be sown in pots or pans, and after two or three seasons' growth they will be large enough for transferring to the open air. The seeds of bulbous plants may be sown in spring if they ripen late in the year; or in early autumn if they ripen in summer.

[Pg 36]

Tulip Seedling.
b. young bulb; **r.** first root; **s. l.** seed leaf; **s. c.** seed-coat.

LIFTING AND STORING BULBS.



TULIPS (39-42)

As all bulbous plants have a period of rest at some season of the year, it is a matter of some little importance whether the bulbs or corms in the soil shall be taken up, or left in the ground from year to year. It will be noticed in many instances in the following pages that certain kinds are recommended to be left in the ground for three or four seasons without being disturbed. This practice may be adopted with advantage when bulbs are naturalised in the grass, the rock-garden, by the sides of lakes, &c., and in thin shrubberies or borders, where they are not likely to be rooted up during the year.

[Pg 37]

In the formal flower beds, however, in which Tulips, Daffodils, Hyacinths, Crocuses, &c., are planted for a display in spring and early summer, it is necessary to lift them after flowering, not only to make way for the summer "bedding" plants, but also to allow of the beds being re-dug and re-arranged if necessary.

The best time for lifting the bulbs is usually when the leaves have commenced to turn yellow. Some do this earlier than others, but in all cases, it is a sign that growth has ceased, and that bulbs or corms in the soil are ripe, and will be improved by a period of rest.

Storing.—When lifted by means of a fork, the bulbs may be spread out to dry, either in the sun, or in some dry and airy shed. After a few days they may be gone over and cleaned by hand, taking off the old leaves, and putting the offsets or bulbils in separate receptacles from the large and well-ripened bulbs that are to be used for next year's display. The bulbs lifted in early summer (*e.g.*, Tulips, Daffodils, Hyacinths, &c.) may be spread out in thin layers—not heaps—upon shelves in a cool, airy shed, where they can remain without injury until the time of planting in autumn comes round.

[Pg 38]

In the case of bulbs or corms that are lifted in autumn when the leaves begin to fade, like the Gladiolus, the same process of cleaning is gone through, but care must be taken to keep them where the frost will not touch them during the winter. It is a good plan to store them in dry sand or earth in shallow boxes, and place them in dry, airy cellars or sheds until the spring.

COMBINATIONS OF BULBOUS AND NON-BULBOUS PLANTS.

While bulbous plants alone, especially when used in large quantities, make an effective display in the garden, they can be made much more attractive by the exercise of a little art and a pleasing combination with other plants that come into blossom at the same period.

In the first place, true bulbous plants, like Tulips, Daffodils, and Bluebells for example, that flower at the same time may be mixed together for planting in grassy banks, or near the margins of lakes, &c., where they are not likely to be disturbed for several years. Similar combinations may be made with Snowdrops, Chionodoxas, Scillas, Leucojums, Crocuses, &c., that appear in the spring; and with Colchicums, autumn-flowering Crocuses, and Sternbergias in the late autumn.

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In the next place, the grace and beauty of bulbous plants proper are enhanced by judiciously mixing them with plants of a non-bulbous nature. Among these latter may be noted the following as being particularly useful:—Wallflowers, Forget-me-Nots, Polyanthus, Primroses, White Arabis (*A. albida*), and Yellow Alyssum (*A. saxatile*), Violas and Pansies, the Winter Aconite (*Eranthis hiemalis*, and *E. cilicica*), Silene, Aubrietia. These are all useful for planting in the autumn at the same time as the bulbs of Tulips, Daffodils, Hyacinths, Crocuses, Snowdrops, Scillas, Chionodoxas, &c. Where formal beds are necessary the non-bulbous plants may be put in first, leaving sufficient space between the plants for the insertion of the bulbs afterwards.

To secure effect and contrast, a little skill, or rather knowledge, of the different plants used, is necessary. Haphazard and careless combinations are not to be encouraged in the formal flowerbeds. It would be a mistake, for instance, to mix three or four different kinds of bulbs (*e.g.*, Snowdrops, Tulips, Daffodils, or Hyacinths) with Wallflowers, Forget-me-Nots, or any of the other plants mentioned above. The effect would be ludicrous, and give the beds a higgledy-piggledy appearance. Nor would it be wise to use one kind of plant in such a way that the other would be smothered or practically concealed from view. This could happen easily with combinations of such plants as Wallflowers or Forget-me-Nots, and such bulbs as Crocuses, Snowdrops, &c.

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The true idea of combination should be such that one plant is really as prominent as the other when in blossom—each one, in fact, lending and borrowing at the same time some charm from the other. Colours of course play an important part in this scheme, and care should be exercised at the time of planting *not* to combine Yellow Polyanthus, Yellow Wallflowers, or Yellow Violas, for instance, with Yellow Tulips or Daffodils; and so on.

PLATE 11.



HYACINTHS (43-46)

The following are a few suggested combinations that will look well:—

1. **Violas** (Blue), beneath White, Red, or Yellow Tulips or Daffodils.
2. **Violas** (Yellow), beneath White or Scarlet Tulips or Hyacinths.
3. **Violas** (White), beneath Scarlet or Yellow Tulips or Daffodils.
4. **Wallflowers** (Red), with Yellow, White, or Orange Tulips or Daffodils.
5. **Wallflowers** (Yellow), with Scarlet, Pink, White, or Red Tulips.
6. **Forget-me-Nots** (Blue), with all Tulips, Red and White Hyacinths, and Daffodils.
7. **Aubrietia** (Purple), with Tulips or Daffodils.
8. **White Arabis**, with Tulips, Daffodils, or Hyacinths.
9. **Yellow Alyssum**, with red-flowered or white-flowered Tulips or Hyacinths.
10. **Silene** (Rose), with White or Yellow Tulips and Daffodils.

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NATURALISING BULBOUS PLANTS IN THE GRASS.

Although it has only been recognised of late years, owing chiefly to the teachings of Mr.

Robinson, there is no place so natural perhaps for the artistic display of bulbous plants as in some piece of grass-land, whether it be a meadow, a sloping bank, the margin of a piece of water, or even a lawn. Every lover of bulbous plants, however, cannot gratify his individual tastes as to where he would like his bulbs to blossom, and he must perforce make the best of the piece of ground—large or small as it may be—that happens to be at his disposal. In large parks and gardens there is no difficulty, or there ought to be none, in securing suitable sites to show off the natural graces of the various bulbous plants recommended for the purpose in this volume. And even in small suburban gardens, where one often sees a piece of grass lying bare and cheerless in winter, a better use might be made of bulbs. Ce n'est que le premier pas qui coûte. Once the initial cost and labour of getting the bulbs beneath the turf is over there is joy ever afterwards, and keen anticipation in watching the spring and autumn Crocuses, Sternbergias, Snowdrops, Snowflakes, the smaller Fritillaries, the Chionodoxas, Scillas, and Bluebells, Narcissi, Grape Hyacinths, and even Tulips, when one is not in too great a hurry to get the mowing done early in the year. One group or another of these plants (to which may be added the tuberous winter Aconite, with its glistening yellow blossoms) may be grown in the smallest of gardens, and will brighten them year after year without trouble or expense, until, perhaps, they become so crowded, that lifting and re-planting becomes essential to prevent suffocation.

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BULBOUS PLANTS UNDER TREES AND SHRUBS.

Early flowering bulbs are capital for planting beneath deciduous trees on lawns or in large parks and gardens. The bulbs bloom at a period when the trees are leafless, and therefore sufficient sunlight is able to percolate through the bare branches for their benefit. Such kinds as Snowdrops, Scillas, Chionodoxas, &c., are excellent for this purpose, and may be left for several seasons without disturbance, provided they get a top-dressing of well-decayed manure during the autumn. Before the trees expand their leaves, the bulbous plants beneath have finished their work for the season, so the absence of light during the summer does not interfere with them in the least. On the other hand, however, they enjoy the cool refreshing shade of the tree foliage, which prevents them from being shrivelled up.

BULBOUS PLANTS FOR CUT FLOWERS.

There are comparatively few of the bulbous plants mentioned in this volume that are not fit to be cut for the adornment of bowls, vases, &c., in the dwelling house. Some kinds, of course, are much better suited for the purpose than others, and it would be difficult indeed to surpass the elegance of the Daffodils, Tulips, Wood Hyacinths, and Bluebells in the spring and early summer. Following these we have numerous Liliiums—white, yellow, orange, red, variously blotched and speckled, and provided with long wiry stems that are often a great advantage. The late summer and autumn flowering kinds are best represented by the Montbretias, Tritonias, Gladiolus, Brodiaëas, and Sparaxis. The dwarf-flowering bulbous plants, like Snowdrops, Crocuses, Grape Hyacinths, Chionodoxas, Colchicums, Sternbergias, Leucojums, &c., although they look charming in bold masses in the garden, scarcely afford much length of stalk to enable them to be used with great effect in bowls, vases, &c., by themselves. As a groundwork to taller-stemmed blossoms, however, they are often found to come in very useful.

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It is, perhaps, scarcely necessary to say that the more simply and naturally flowers are "bunched" the better they look in room decorations. Very often indeed, it is difficult to improve on a bunch of flowers picked at random in the garden and placed in bowls of water as they are—with stems of various lengths,

PLATE 12.



**LEUCOJUM VERNUM, (47) MUSCARI
CONICUM (48), ERYTHRONIUM
JOHNSONI (49), TECOPHYLÆA
CYANOCROCUS (50).**

and the blossoms facing in different directions. That some people have extraordinary notions as to what a "bunch" of flowers really means may be gathered from an inspection of any ordinary local flower show in the kingdom. At such exhibitions a "bunch" of flowers is generally as large, flat, unwieldy, and squatty as possible—the various kinds being jammed together as if they were "sticks" of Asparagus done up for market. Educated judges have been endeavouring for some years to get an improvement in the method of putting bunches of flowers together, but with very little success up to the present. The same old order of things prevaieth.

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When to pick Flowers.—Of course, when people want flowers they will pick them at any time—if they happen to be in their own gardens, not in other people's. It may be as well, however, to remind the reader that if picked either early in the morning—the earlier the better—or in the evening after sunset, flowers last much longer in a cut state, than if they are picked at any other period of the day. Perhaps the very worst time to pick flowers is from mid-day to 2 or 3 o'clock—especially in summer. The heat takes a good deal of substance out of the blossoms, and many get so "blown" that if cut at that particular period of the day, the petals never recover, but drop off in a few hours. Tulips are well-known examples of this. In the morning and evening, the petals close up to a point—really to prevent the pollen from getting drenched with dew or rain. But when the sun shines, they open out, and lie well back from the stamens so that insects may be lured to take the pollen from one flower to another. In this state the blossoms should not be cut or pulled as they will last but a short time.

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The water in which flowers are stood should be fresh and clean. If some time has elapsed before the flowers are placed in it, about an inch or so of the stems may be cut off with a sharp knife, so as to allow a layer of fresh cells to come in contact with the water. Some flowers last much longer than others in a cut state, and the period may be prolonged a little by putting a pinch of salt, or a little clean charcoal in the water at the same time.

BULBOUS PLANTS FOR COLD GREENHOUSES.

How often one hears complaints as to the lack of flowers during the coldest months of the year. And how often one sees, in almost empty greenhouses, bare shelves that could be made gay with blossom, and with but little labour or expense. This can be done easily enough by selecting early flowering bulbs, and having them "potted up" early in the autumn, so that they will have made plenty of roots by, say, Christmas time. The pots most generally useful are 5-inch ones (often called 48's). These should have some broken pieces put in the bottom for drainage, and over this a layer of moss or fibre to prevent the soil from choking it up later on. A compost made up of three parts of rich fibrous loam, one part of silver or river sand, and one part of leaf-soil, all well

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mixed, should be prepared. A handful or two is placed over the drainage, and one, two, three, or five bulbs, according to size, may then be placed on a level bottom. The pot is then filled to within about a quarter of an inch of the rim, the soil being firmly pressed down between the bulbs, the tops of which may be either level with the surface or beneath it. In any case, it is not necessary to bury bulbs that are going to have the protection of a greenhouse so deep as those planted in the open air, where they will have no protection from the weather.

The bulbs, having been potted, and labelled if necessary, say sometime in October or November, need not be taken into the greenhouse at once. It is better to keep them in the open air, covered with two or three inches of fine ashes or coco-nut fibre until the bulbs have made plenty of new roots in the soil, or they may be sheltered in a cold frame. Any time after this, as many pots as may be required are taken out of the ashes or fibre, the remains of which should be washed from the pots and shaken off the surface of the soil. If there is a slight warmth in the greenhouse, just enough to keep the frost out on cold nights, so much the better, but too much heat is unnecessary, unless one wishes to "force" bulbs into very early bloom. This, however, generally means exhaustion, if not death, to the bulbs so artificially treated.

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There are many kinds of bulbous plants suitable for the decoration of cold greenhouses in winter and early spring in the way indicated, and the following may be regarded as a good selection:—Bulbocodiums, Chionodoxas, Crocuses (Spring), Erythroniums, Fritillarias (dwarf), Snowdrops, Hyacinths, Snowflakes, Grape Hyacinths, Dwarf Narcissi, Puschkinias, Scillas, Sternbergia Fischeriana, Bulbous Irises, Tecophilæa—all of which are described in their respective places in this work.

BULBOUS PLANTS FOR WINDOW BOXES.

PLATE 13.



**BRODIAEA UNIFLORA (51-52),
CHIONODOXA SARDENSIS (53),
ERYTHRONIUM DENS-CANIS (54-55)**

When the Zonal Pelargoniums, Marguerites, Fuchsias, Lobelias, &c., have done their duty in the window boxes during the summer and autumn months, it is essential that something else must take their places for the winter and spring months, unless they are to be left bare. Dwarf shrubs, of course, like Aucubas, Golden Privet, Cupressus, Skimmias, &c., are much favoured, and rightly so. But in conjunction with them many kinds of bulbous plants may be used, and planted at the same time as the shrubs. Snowdrops and Crocuses are great favourites for the edges of boxes. Besides these, however, the beautiful blue-flowered Grape Hyacinths (Muscari), the Chionodoxas and Scilla sibirica, may be used in a similar way and with great effect, or as a carpet beneath the shrubs. If the latter are not placed too close together, space may be left for a few bulbs of Tulips and Daffodils to peep out between them.

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Of course, window boxes filled entirely with bulbous plants would probably look much more artistic than those having a mixture of shrubs and bulbs. Combinations in miniature could be

made in the same way as suggested for the open air beds on [p. 41](#). Boxes planted with Polyanthuses, Primroses, Forget-me-Nots, Silene, White Arabis, Yellow Alyssum, Wallflowers, &c., as well as bulbs, would not look bare in autumn or winter, and would be very effective when in blossom in the spring time.

DESCRIPTIONS, CULTURE, PROPAGATION, &c., OF THE BEST BULBOUS PLANTS FOR THE OPEN AIR.

ALLIUM.—Although about 250 species of this liliaceous genus are known, only a dozen or so are usually met with in gardens—the limited number being probably due to the pungent and not altogether agreeable odour they emit when bruised or cut. In fact, the plants may be briefly described as more or less ornamental Onions, as they belong to the same family as this well-known esculent, and naturally possess a family likeness. The bulbs are tunicated, the leaves either flat as in the Leek, or roundish and hollow as in the ordinary Onion, while the 6-petalled starry flowers are borne in umbels on the top of the shoot that springs out of the bulb under the ground.

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The kinds mentioned below flourish in ordinary good garden soil of a gritty nature, that has been deeply dug and well-manured. They are useful for the decoration of the flower border in bold patches, but are probably more natural in grass-land, where they can remain for several years undisturbed. The bulbs may be planted in early autumn, 3 or 4 inches deep—more or less according to the size of the bulbs, and will come into blossom from April and May, till July or August. As cut flowers, they are very ornamental, but unfortunately, they are not greatly used in this way owing to their odour, which some people find quite unbearable. Propagation is effected by means of offsets from the bulbs, or seeds. Two species—*A. Moly*, and *A. neapolitanum*—are often forced into early blossoms in the greenhouse, in the way mentioned at [p. 46](#).

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The following are the best kinds:—*Neapolitanum*, *Erdeli* (see [Plate 18](#), fig. 72), *karataviense*, *triquetrum*, *ursinum*, and *zebdanense*, all with white or whitish flowers; *acuminatum*, *hirtiflorum*, *Macnabianum*, *narcissiflorum* (or *pedemontanum*), *Ostrowskianum*, *Schuberti*, and *Suworowi*, representing rose, magenta, crimson, lilac, and purple shades; the best yellow-flowered kinds are, *Moly* ([Plate 17](#), fig. 68), *flavum*, and *orientale*; while *coeruleum* (or *azureum*) is the most attractive species with blue flowers. *A. acuminatum* is the dwarfest of these, being only about a foot high, the others rarely exceeding 1-1/2 to 2 feet, except perhaps *hirtiflorum* and *Suworowi*, which often are 3 feet high.

AMARYLLIS Belladonna (*Belladonna Lily*).—This charming member of the Narcissus family deserves more extensive cultivation than it enjoys at present. It is a native of South Africa, and has large bulbs—3 to 4 inches or more deep—with thickish, silky-woollen coats, and strap-shaped leaves, usually 12 to 18 inches long. About August and September, the sweet-scented funnel-shaped blossoms of a soft rosy colour (see [Plate 31](#), fig. 111) are produced on top of a stout stalk, 12 to 18 inches high, after the foliage has withered. Some varieties are better than others, but the best of all is that which originated at Kew, and is remarkable for having three or four dozen rich rosy crimson flowers on a scape 2 to 3 feet high.

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The Belladonna Lily can only be grown satisfactorily in the open air in the milder parts of the kingdom. The bulbs should be planted about 9 inches deep in a well-drained loamy soil containing plenty of sand and leaf-soil. Beneath a wall facing due south is generally a good position for the plants. In winter, cold rains should be kept off by placing a layer of leaves or litter over the dormant bulbs. The simplest way to increase the stock is to detach the offsets from the old bulbs whenever the latter are disturbed—say every fourth or fifth year.

Note.—The gorgeous plants grown in greenhouses under the name of Amaryllis rightly belong to the genus Hippeastrum, and are too tender for open air culture in our climate.

PLATE 14.



ENGLISH IRISES (56-59)

ANTHOLYZA.—The brown-coated corms, sword-like leaves, and the bright-coloured tubular flowers of these plants very much resemble those of the closely-related genus *Gladiolus*. Indeed, what suits the *Gladiolus* will suit the *Antholyzas* in the way of a well-drained loamy soil. A somewhat warmer and sunnier position is, however, necessary, as these South African plants have not been acclimatised by selection and hybridisation in the same way as the *Gladiolus*. The best-known kinds are *æthiopica*, with spikes of scarlet and greenish flowers; *caffra*, rich scarlet; *Cunonia*, scarlet and black; *fulgens*, rich coppery rose; and *paniculata*, with red, brown, and yellow blossoms, and apparently the hardiest of all. They are all best increased by offsets.

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BABIANA (*Baboon Root*).—Charming plants of the Iris family, with fibrous-coated corms about an inch in diameter, stiffish, hairy, plaited leaves, and dense spikes of funnel-shaped flowers. The latter, in most cases, are sweetly scented and brilliantly coloured, and in a cut state, are exceedingly handsome for decorative work. Unfortunately the plants are not very hardy, and can only be grown in the open air in the very warmest and mildest parts of the kingdom with anything like success. In favourable localities the corms should be planted 3 or 4 inches deep, in mild weather, any time between September and November. The soil should be very light, loamy, and well-drained, and the position should be the warmest and sunniest in the garden. Plenty of sand or grit around the corms is an advantage, and a covering of leaves or litter will keep off cold winter rains. Babianas are very useful for cool greenhouse decoration, and may be easily grown in pots, only giving water when roots have developed, and the new leaves are beginning to show. (See p. 46).

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The best kinds are *disticha*, pale blue; *plicata*, violet blue; *ringens*, scarlet; *stricta*, the three outer segments of which are white, the three inner lilac-blue with a dark blotch at the base. This is the best-known kind, and there are many forms of it, notably *angustifolia*, bright blue tinged with pink; and *rubro-cyanea*, brilliant blue and crimson. All increased by offsets.

BESSERA elegans.—A pretty liliaceous plant, 1-1/2 to 2 feet high, with slender rush-like leaves, and scarlet or scarlet and white bell-shaped blossoms. Being a native of Mexico it is rather tender, and can only be grown out of doors in the mildest parts of the British Isles in the same way as the Babianas. As a pot plant it may be grown in a cool greenhouse. Increased by offsets from the brown silky-coated corms.

BLOOMERIA aurea.—This is the best known species. It is a native of California and belongs to the Lily family. The small corms are covered with netted pale brown coats, from which spring long narrow leaves, and umbels of bright yellow starry flowers about June or July. *B. Clevelandi* is another species with smaller yellow flowers. The corms of both kinds should be planted in warm sunny spots in well-drained sandy loam and leaf-soil in the autumn, and a little protection with leaves or litter may be given in cold wet winters.

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BOBARTIA aurantiaca.—This pretty member of the Iris family is also known under the name of *Homeria*. It has roundish corms, an inch or more in diameter, covered with pale brown shaggy fibrous coats. The orange-red or yellow blossoms appear in summer and last a long time. The plant is a native of South Africa, and can only be grown in the mildest parts of the kingdom in the same way as the *Babianas*, *Ixias*, &c., which see. Increased by offsets.

BRAVOA geminiflora.—A graceful Mexican plant of the Narcissus family, with roundish fibrous-coated corms over an inch in diameter, and narrow sword-like leaves 12 to 18 inches long. The bright red or scarlet tubular blossoms droop in pairs from stalks 1 to 2 feet high from July onwards. In the milder parts of the kingdom this plant may be grown easily in sheltered sunny spots in rich sandy loam and leaf-soil, protection being only needed in severe winters from cold heavy rains or hard frosts by means of leaves or litter. Increased by offsets in autumn or seeds sown in spring.

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BREVOORTIA Ida-Maia (*Brodiaea coccinea*).—This beautiful Liliaceous plant is popularly known as the "Californian Fire Cracker." It has roundish corms an inch or so in diameter, with brown fibrous coats. The leaves are very narrow, while the tubular flowers are borne in loose umbels in June or July on top of slender wiry stalks 2 to 3 feet high. The shape and colour of the individual blossoms are shown on [Plate 19](#), fig. 75. They are very attractive in bold masses, and are excellent for cutting purposes. In the garden it is essential to support the slender flower-stems with thin sticks to keep the blossoms from trailing in the dirt. During September and October is the best time to plant the corms 3 to 4 inches deep, in rich sandy loam, in warm sunny spots in the border or rock-garden, where they should be allowed to remain for three or four seasons before they need be disturbed. Increased by offsets and seeds.

PLATE 15.



SPANISH IRISES (60-63)

BRODIAEA.—The plants belonging to this genus have practically the same characters as those of *Brevoortia*, the chief differences being that many (but not all) of the *Brodiaeas* have six fertile stamens instead of three, and the perianth in many cases is more funnel or bell-shaped than cylindrical. The corms are about the same size with netted, brown, silky coats, but are quite distinct from those in the section formerly known under the names of *Milla* and *Triteleia*. The cultural treatment is precisely the same as detailed under *Brevoortia* above. An idea as to the beauty of the blossoms of some of the kinds may be gained from a glance at [Plates 13, 19, 20, and 24](#), in which *B. laxa* (fig. 76), *B. ixioides* (fig. 77) (also known as *Calliprora lutea*), *B. Bridgesi* (fig. 91), *B. Howelli lilacina* (fig. 80), and *B. uniflora* (figs. 51 and 52) (the last named being remarkable for having flowers singly instead of in umbels), are respectively depicted. Other species well worth growing are *californica*, rosy-purple; *capitata*, lilac or violet, and its white variety *alba*; *congesta*, deep violet; *Douglasi*, bright blue; *gracilis*, bright yellow; *grandiflora*, violet-blue; *Hendersoni*, salmon-yellow striped with purple; *Howelli*, porcelain-white striped with blue; *hyacinthina*, purple, and its white variety *lactea*; *Leichtlini*, white; *multiflora*, pale blue; *Orcutti*, lilac; *peduncularis*, porcelain-white to rosy-purple; *Purdyi*, rosy-purple to lilac; *rosea*, rose-red to pinkish-purple; *Sellowiana*, yellow; and *stellaris*, reddish-purple to deep blue. To these

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BULBOCODIUM vernum.—A charming Crocus-like plant of the Lily family, closely related to the Meadow Saffrons (*Colchicum*), as may be seen by comparing the method of lateral growth of the brown-coated corms—each an inch or more in diameter. It is a native of the Alps. In mild seasons it often produces its violet or rosy-purple funnel-shaped flowers in January, not more than 6 inches from the ground, and remains in blossom in company with Snowdrops, Leucojums, &c. The leaves appear afterwards and elaborate food for the production of next year's corms before they wither. A rich well-drained loam with a little sand and leaf-soil suits it very well, and the corms may be planted in September or October about 4 inches deep, in bold masses in the rock garden or grass-land, and left alone for a few years, after which there will be numerous offsets to increase the stock. As slugs are very fond of the young growths, they must be carefully looked for morning and evening, and a little soot or lime carefully spread round the plants may help to check them (see [p. 142](#)).

CALOCHORTUS (*Mariposa Lily*).—A very distinct group of Liliaceous plants with brown-coated bulbs, narrow leaves, and very showy and distinct-looking blossoms—some of which are shown in [Plate 22](#), fig. 84, and also in [Plate 20](#) of the companion volume "BEAUTIFUL GARDEN FLOWERS." Joined to the Mariposa Lilies proper are the "[Star Tulips](#)," formerly known under the name of *Cyclobothra*—well-known representatives of which are shown in the same Plate, figs. 85 and 86. They are quite distinct in the appearance of the flowers, but botanically they are considered to be identical in the important characters. Both groups are well worth growing in the milder parts of the kingdom in warm sunny parts of the garden. This is essential as most of them are natives of California, Oregon, Arizona, and parts of Mexico, where they have plenty of sunshine and are not subject to the cold drenching rains that often characterise the British winter. In colder districts where they would be unable to survive the ordinary winter, the plants may be brought to perfection in a cold frame so long as they are free from frost and heavy rains. The soil in which they appear to flourish best seems to be sharp sand, leaf-soil and road grit, well mixed together with a little loam added. The bed—in which the bulbs are to be planted 3 to 4 inches deep, from September to November, but not later—should be raised above the general level, the better to throw the water off in winter. If the beds or borders are facing south and slightly sloping, so much the better. A light covering with reeds or bracken is advisable during severe weather, but should be removed on all warm days, and altogether from February and March, as the young growths will then begin to push through the soil. After the flowering period—*i.e.*, July and August—is over, and the foliage has withered, the bulbs may be either lifted and carefully stored in sand or dry earth until the planting season comes round again; or, better still, lights may be placed over them to keep the bulbs dry and allow them to ripen thoroughly and naturally. If the latter treatment is adopted the bulbs need not be disturbed for three or four years, and will give better blossom on the whole in consequence. It must be remembered that although the bulbs dislike moisture when dormant, they must have a sufficient supply during active growth, otherwise they may soon become parched and withered. The easiest way to increase the plants is by means of offsets. When seeds ripen they may be sown very thinly in pots or pans in spring, and the seedlings may remain for a couple of seasons before being transplanted. Sometimes "bulbils" (see [p. 32](#)) are produced on the stems, and may be sown in light sandy soil as if they were seeds. From seeds and bulbils it takes from three to six years to produce a flowering bulb. [Pg 59] [Pg 60] [Pg 61]

There are now several kinds of Mariposa Lily in cultivation. Of these the varieties of the *venustus* group are undoubtedly the handsomest. (See [Plate 22](#), fig. 84.) They grow about 18 inches high, and have cup-shaped flowers 3 inches across, having three very large and three very small segments. The colour of the type is white, yellow at the base, deeply stained with crimson, and having a conspicuous blotch at the base. In the variety *alba* the flowers are wholly white; *lilacinus*, deep lilac; *purpurascens*, lilac-purple; *citrinus*, lemon-yellow; *oculatus*, with rosy buds passing into white, with a deep blackish-purple blotch in the centre of a yellow base; and *Vesta*, flowers very large, white flushed with rose, and marked with brown and yellow at the base.

Other kinds are *albus*, with drooping pearly-white flowers ([Plate 22](#), fig. 85); *apiculatus*, lemon-yellow; *Benthami*, bright yellow; *coeruleus*, lilac or creamy-white, densely bearded with blue hairs; *clavatus*, golden-yellow; *elegans*, white tinged with purple, but rich pink in the variety *amoenus*; *flavus*, yellow, drooping; *Goldyi*, old gold with hairy centre; *Howelli*, creamy-white; *Kennedyi*, orange-red; *lilacinus*, pink, purple, or lilac, a fine species; *luteus*, yellow or orange, with purple hairs; *Plummeræ*, large soft lilac flowers, with golden-yellow hairs and blotched with purple; *pulchellus*, orange-yellow, sweet-scented, drooping (see [Plate 22](#), fig. 86); *Purdyi*, white, spotted with purple, and covered with long white hairs; *splendens* pale lilac, with silky white hairs and deep purple blotches at base; and *Weedi*, yellow. [Pg 62]

CAMASSIA.—Graceful-looking North American plants of the Lily family, with rather large ovoid bulbs, strap-shaped tapering leaves, and loose racemes of starry blossoms which usually appear from May to July, and are useful for decorations when cut. They flourish in ordinary good and well-drained garden soil in warm sheltered spots. The bulbs should be planted in September or October, and covered with about twice their own depth of soil. They may be left undisturbed for a

few seasons, but in that case a mulching of well-decayed manure in autumn would be beneficial. New plants are most readily secured by offsets from the old bulbs. Seeds, however, are freely produced in most places and should be sown in cold frames as soon as ripe. (See [p. 36](#)).

PLATE 16.



**MADONNA LILY (64) FRITILLARIA
IMPERIALIS, VARS. (65-66)**

There are only a few species, the best being *C. esculenta*, the [Quamash](#) or Camass Root of the North American Indians. The blue flowers, each about 2 inches across, are borne on scapes 1-1/2 to 3 feet high, and look very handsome above the narrow arching leaves. *C. Cusicksi*, with porcelain-blue flowers (see [Plate 18](#), fig. 70), grows 3 to 4 feet high. *C. Fraseri*, with very pale-blue flowers, is about 1-1/2 feet high; while *C. Leichtlini* grows 3 to 4 feet high, and has large creamy-white blossoms, about 3 inches in diameter.

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CHIONODOXA Luciliæ (*Glory of the Snow*).—This charming harbinger of spring is a native of Asia Minor, where it pushes its beautiful brilliant blue and white blossoms (see [Plate 2](#), fig. 9) through the snow-clad mountains early in the year. It has ovoid bulbs about 1 to 2 inches deep, arching leaves, and each flower-stalk 6 to 10 inches high, carries from six to twenty blossoms in February, March, and April. There are several fine varieties, the best being *gigantea* (or *grandiflora*), with very large flowers; *sardensis*, shown on [Plate 13](#), fig. 53, has gentian-blue flowers. The variety *alba* has pure-white flowers, and *Tmolusi* and *Alleni* are also good varieties. A hybrid between *C. Luciliæ* and *Scilla bifolia* is known as *Chiono-scilla*, but is not common. Other Chionodoxas are *C. cretica*, with white or pale-blue flowers very scantily produced; and *C. nana*, with white or lilac-tinted flowers.

Chionodoxas flourish in ordinary good garden soil, and are suitable for the rockery, flower-border, beneath deciduous trees in shrubberies, or in the grass. To be effective in any of these positions they should be planted in hundreds and thousands, and in grass-land may be mixed with the smaller-flowered kinds of Narcissus (*e.g.*, *minimus*, *cyclamineus*, *triandrus*). In the latter case the bulbs may be left alone for years with advantage, as they never interfere with mowing operations.

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Offsets are freely produced from the old bulbs, and are the easiest means of increasing the stock. Seeds may be sown when ripe, but they take a few years to produce flowering bulbs (see [p. 34](#)).

CHLOROGALUM pomeridianum (*Soap Plant*).—A distinct looking plant about 2 feet high, with blue-green leaves and spikes of whitish purple-veined flowers, that usually open in the afternoon during the summer months. It flourishes in ordinary soil, and may be increased by offsets from the old bulbs. The best time to plant is in autumn.

COLCHICUM (*Meadow Saffron*).—In the autumn, when the landscape looks more or less dreary, the Colchicums relieve the monotony with their bright appearance. The bulbs are peculiarly one-sided, and differ a good deal in size according to the species, so that they should be planted at

various depths according to size. The best time for planting is July, or not later than August, and if massed in bold patches in the grass, flower-border, shrubbery, or rock-garden, the effect later on will be much more effective than if the bulbs were put in sparingly. A rich sandy loam will suit most kinds, but any good and well-drained garden soil will give satisfactory results. It may be remarked that most kinds produce their flowers without the leaves. The latter appear the following spring to elaborate food for the new bulbs, dying down during the summer. Colchicums are best propagated by offsets. Seeds may also be sown about midsummer when thoroughly ripe, and will produce flowering bulbs in five or six years (see [p. 34](#)). There are many kinds, the most popular being: *C. autumnale*, a British plant, popularly known as the "Autumn Crocus"—owing to the shape and bright purple colour of its cup-shaped blossoms, which appear from the end of August to November. There are many varieties of it such as *album*, white; with a double form; *maximum*, purple; *purpureum*, purple rose; and *striatum*, red striped with white. *C. Bivonæ* has flowers chequered with white and purple. *C. Bornmülleri*, a fine species with rosy-lilac flowers. *C. byzantinum* has pale rose blossoms. *C. giganteum*, flowers rosy, very large. *C. libanoticum*, white. *C. montanum* produces its lilac-purple or whitish flowers in February and March. *C. Parkinsoni* has white flowers distinctly veined and chequered with violet-purple. The flowers of *C. speciosum*, shown in [Plate 33](#), fig. 118, appear in September and October, and vary from reddish or rose-purple to deep crimson-purple. *C. variegatum* (a very old species also called *Parkinsoni*) has its rosy flowers beautifully chequered with violet purple.

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CRINUM.—Most of the Crinums require the protection of a greenhouse or hothouse in our climate. The kinds mentioned below, however, may be grown in the open air in the milder parts of the country. The large and broad strap-shaped leaves, 2 to 4 feet long, more or less gracefully recurving from the long-necked bulbs, are in themselves a noble sight, but their beauty is considerably enhanced when the large, funnel-shaped blossoms are borne in clusters on the top of a stout, fleshy stalk. Given a rich and well-drained, loamy soil, warm-sheltered spots, and sufficient moisture during active growth, and the hardy Crinums usually flourish. They may be increased by offsets taken from the base of the large old bulbs; or by means of the large fleshy bulb-like seeds that are produced in favourable seasons. The seed needs only to be placed on the top of moist soil in a pot, and under the shelter of a greenhouse or cold frame will soon germinate in its own peculiar way. The best-known hardy Crinums are *C. Moorei*, a native of South Africa. It has large long-necked bulbs, broad bright-green leaves 2 to 3 feet long, and clusters of soft-pink flowers, each 6 inches or more across, on a scape 2 to 3 feet high (see [Plate 30](#), fig. 109). *C. Powellii*, with a reddish wash down the centre of the petals, and its pure white variety *album* ([Plate 32](#), fig. 115) are also two very fine plants for the out-door garden. They are really forms, or hybrids perhaps, of the South African *S. longifolium* (or *C. capense*), which has large white flowers with a central reddish stain on the outside of the petals. It is quite as hardy as the other kinds and may be treated in the same way.

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CROCOSMA aurea.—This beautiful Iridaceous plant is perhaps better known as *Tritonia aurea*. It is a native of South Africa, and has fibrous-coated corms, narrow sword-shaped leaves, and brilliant orange-red starry blossoms borne on branched stems about 2 feet high, in August or September. It likes a rich sandy loam and leaf-soil and soon makes fine clumps in the milder parts of the kingdom. In cold districts and the north generally, the corms may be lifted in October or November, when the leaves have withered, and may be stored in sand or soil until spring. Then they may be replanted, any offsets from the older corms being placed in separate beds and grown on until large enough for flowering. As a pot plant for greenhouse decoration, the Crocosma is most useful. After potting in spring, the pots may be plunged (*i.e.*, sunk up to the rims) in ashes or fibre, and plenty of water should be given during the summer months when the growth is active. When the flower-spikes appear the plants may be taken into the greenhouse or conservatory.

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PLATE 17.



**LILIUM CROCEUM (67) ALLIUM
MOLY (68) SCILLA PERUVIANA ALBA
(69)**

CROCUS.—The popularity of the Crocus is undoubted, but popular favour generally confines itself to the white, blue, lilac, purple, yellow, and striped varieties of *C. aureus*, the Old Dutch yellow Crocus, and *C. vernus*. These all flower from February to April, and when planted in hundreds and thousands in the borders or grass-land they are then indeed a glorious sight, especially if naturalised with Snowdrops, Leucojums, and Bulbocodiums. The individual blossoms do not last long, but they are thrown up so profusely from the roundish corms beneath, that they give a continuous glow for several weeks in early spring. The above all flourish in light sandy loam and leaf-soil. To secure the best results the corms should be planted about 3 inches deep in September or October. When possible, as in grass-land for example, the plants should not be disturbed for a few seasons, so they may increase as Nature intended. In this way they will produce a more striking picture each succeeding year, especially if they have had the advantage of a top-dressing with well-decayed manure in autumn. When the corms have to be lifted each year to make way in the borders for summer-flowering plants, the best time to take them up is when the foliage has begun to wither. This process is often hastened by twisting the narrow leaves and tying them into little bundles.

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Apart from the ordinary spring-flowering Crocuses, *aureus* and *vernus* (a selection of which can be obtained from any bulb catalogue), there are several natural species which also flower in spring, and may be planted and grown exactly in the same way. Amongst these the best known are *alatavicus*, white and yellow; *Balansæ*, orange-yellow; *banaticus*, bright purple and white; *biflorus*, white to pale lavender, known as the "Cloth of Silver Crocus," of which there are many beautiful forms; *Biliotti*, purple; *carpetanus*, lilac to white; *chrysanthus*, orange-yellow, with several varieties; *dalmaticus*, lilac and yellow; *etruscus*, purple and yellow, striped; *Fleischeri*, white and yellow, veined purple; *Imperati*, lilac-purple, with deeper stripes; *Korolkowi*, yellow; *reticulatus* or *variegatus*, white to deep lilac, veined purple; *stellaris*, orange; *suaveolens*, lilac and yellow, veined purple; *Susianus* or *revolutus*, deep orange, known as the "Cloth of Gold Crocus"; *versicolor*, purple to white, veined purple; and *vitellinus*, orange.

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Autumn-Flowering Crocuses.—Colchicums, and especially *C. autumnale*, are popularly known as "Autumn Crocuses." They belong, however, to the Lily family, and must not be confused with those species of Crocus proper which belong to the Iris family, and also flower during the autumn months, sometimes even as late as December, when the blossoms are often spoiled by the weather, unless protected with handlights or frames. At this period they are very useful, with the Colchicums and Sternbergias, for the decoration of grassy slopes and banks, and may be intermingled with them in places where they can remain undisturbed for some years.

The chief difference in the cultivation of Spring and Autumn Crocuses, is that the corms of the latter should be planted in July, or not later than August—in fact, at the same time as the Colchicums. The following are among the best Autumn Crocuses:—*Asturicus*, violet, purple; *Boryi*, white and yellow; *cancellatus*, white to purple, and lilac; *caspius*, white tinted rose; *Clusi*,

pale purple and white; *hadriaticus*, white and purple; *iridiflorus* or *byzantinus*, purple, lilac; *Karduchorum*, lilac, veined with purple; *longiflorus*, lilac, yellow, sweet-scented; *medius*, purple, veined, see [Plate 33](#), fig. 117; *ochroleucus*, creamy-white, orange, see [Plate 33](#), fig. 121; *pulchellus*, lavender-blue and yellow, veined; *Salzmanni*, lilac to white, veined; *sativus*, lilac, veined purple; the well-known "Saffron Crocus" of commerce, with several varieties; *Scharojani*, orange-yellow; *speciosus*, lilac, purple, with deeper veins, see [Plate 33](#), fig. 122; and *zonatus*, rosy-lilac, veined purple.

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All Crocuses may be easily increased by offsets, which may be detached when the corms are lifted. Seeds take about three years to produce flowering corms (see [p. 34](#)).

DIERAMA (Sparaxis) pulcherrima.—This is a charming South African plant with fibrous-coated corms, and long narrow sword-like leaves. It has beautiful funnel-shaped flowers, which droop from thread-like stalks about September and October, a period when they are sometimes injured by the bad weather. The blossoms, which are shown on [Plate 31](#), fig. 112, are usually crimson in colour, but there also exist white, pale-red, and prettily-striped forms, all borne on stalks 3 to 6 feet high, and beautiful for cutting purposes. *D. pendula*, with deeply veined lilac flowers, is another species not so well known.

The plants cannot be considered hardy, except in the milder parts of the kingdom. In less favoured spots they may be planted in spring in warm sunny spots sheltered from cold winds, and if left in the ground in winter should be protected from cold rains and frosts with litter, bracken, lights, &c. A light sandy loam, with a little leaf-soil, will suit the plants best, and they may be increased by offsets.

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ERYTHRONIUM (Dog's Tooth Violet).—These pretty plants of the Lily order have more or less oblong or cylindrical bulbs, sometimes with creeping rhizomes, and leaves more or less marbled or blotched or sometimes green. The 6-petalled blossoms are, more or less, drooping, but are usually conspicuous above the foliage and render the plants very attractive either in the rock-garden, flower-border, or grass-land. The plants like a moist sandy loam and leaf-soil, which, however, must be well drained so that the bulbs may not decay with the winter rains. Offsets are the easiest means of increasing the stock, and are best taken off after the flowers are over and the leaves have withered, *i.e.*, about midsummer.

PLATE 18.



**CAMASSIA CUSICKI (70) LILIUM
PYRENAICUM (71) ALLIUM ERDELI
(72) IXIOLIRION PALLASI (73)**

The Common Dog's Tooth Violet (*E. Dens-Canis*) is an old-world plant, and has been in cultivation many years. It has blue-green leaves, marbled with dull purple, and the flowers are of a soft rose or purple hue, although there are various shades (as shown on [Plate 13](#), fig. 54), including a white one. There are now many other species and varieties in cultivation—all natives of temperate North America, and well worthy of a place in the garden. They all blossom from March to May, and vary in height from 3 to 12 inches. The following are the best known at present:

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—*Albidum*, white, tinged yellow, or wholly yellow in the variety *bracteatum*; *americanum*, golden yellow, tinged purple; *citrinum*, lemon yellow; *Dens-Canis* (see [Plate 13](#), figs. 54 and 55); *giganteum*, white, suffused with orange or yellow; *grandiflorum*, yellow; *Hartwegi*, creamy-white and orange; *Hendersoni*, rose to purple with yellow centre; *Howelli*, yellow and orange; *Johnstoni*, rosy-pink (see [Plate 12](#), fig. 94); *montanum*, creamy-white; *propullans*, rose-purple; *purpurascens*, pale yellow tinged purple, or lilac in the variety *grandiflorum*; this species has sometimes about a dozen flowers on a scape; and *revolutum*, pink to rosy-purple, or white with a yellow centre in the variety *Bolanderi* or *Smithi*.

EUCOMIS punctata.—This bold-looking plant is probably the best and most ornamental member of the genus. It has very large bulbs and tufts of gracefully spreading and recurved wavy leaves, bright shining green above, and densely spotted with purple beneath. The creamy-white or yellowish starry blossoms, with a conspicuous violet ovary in the centre, appear from July to September, and are packed close together on a stout purple spotted scape 1-1/2 to 2 feet high. Other species are *bicolor*, with unspotted leaves and greenish-yellow flowers; *nana*, which grows only about 9 inches high, has brownish-green blossoms; *undulata*, greenish-yellow ones; *regia*, white; and *pallidiflora*, with leaves over 2 feet long, and 4 inches or more broad, has greenish-white flowers.

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They are all natives of South Africa, and may be grown in warm sheltered spots in the milder parts of the country. They like a rich and well-drained sandy loam, and if left undisturbed for a few years, will probably require protection in bleak localities from winter rains and frost. They may be increased by offsets. It takes four or five years to secure flowering bulbs from seeds.

FERRARIA undulata.—A distinct looking Iridaceous plant with tunicated bulbs, sword-like wavy leaves, and peculiar dull-purple flowers, each with six wavy segments spotted with purple, and appearing in March and April. This plant flourishes in well-drained sandy loam and leaf-soil, and may be considered fairly hardy in the milder parts of the kingdom. Increased by offsets.

FRITILLARIA.—There are fifty species or more belonging to this genus, but many of them, although highly interesting, are so dull in colour or small in blossom, that they are only likely to be met with in botanical collections. The common Crown Imperial (*F. imperialis*), shown in [Plate 16](#), figs. 65 and 66, with its sturdy stems, 2 to 3 feet high, bright green wavy leaves, and bright yellow drooping blossoms, is probably the best known; but there are many forms of it in which the flowers vary in colour from yellow to orange and bright red. The Snake's Head (*F. Meleagris*) is another well-known species to be seen growing naturally in moist meadows in parts of England. Its beautiful white, rosy or purple blossoms (see [Plate 8](#), fig. 33) droop from the stalks, 1 to 1-1/2 feet high in April and May, and are beautifully chequered with deeper coloured bands. For naturalising in the grass with Narcissi, Dog's Tooth Violets, &c., this is a very valuable plant. *F. Moggridgei*, a dwarf form of the purple, brown, and yellow *delphinensis*, is another good garden plant shown on [Plate 8](#), fig. 31. The following kinds may be used for naturalising in the grass or for grouping in nooks of the rock-garden:—*Fusco-lutea*, *aurea*, *citrina*, *lusitanica*, *lutea*, *askabadensis* (finely figured in "FLORA AND SYLVA,") *discolor*, *pallidiflora*, *pudica*, *Thunbergi*, *Whittalli*, all with yellow or greenish-yellow blossoms, and ranging from 6 to 12 inches high. To these may be added *F. recurva* ([Plate 8](#), fig. 34), a Californian species, about 1 foot high, and remarkable for its drooping bright orange-scarlet blossoms, the interior of which is yellow blotched with purple. *F. camtschatcensis*, the "Black Lily," has deep blackish-red flowers. It flourishes in moist sandy loam and peat.

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F. Walujewi, with narrow tendril-tipped leaves, has silver-grey flowers suffused with purple brown, and spotted with red and white within (see [Plate 8](#), fig. 32). To these may be added *armena*, dark purple; *Elwesi*, green and purple; *pyrenaica*, green and purple, spotted; *persica* or *libanotica*, chocolate, purple and green; *latifolia*, purple, lilac, yellow, &c.

The Fritillarias have bulbs of various sizes, and many of them—notably those of *F. imperialis*—emit a very strong and disagreeable odour. They produce offsets freely in most cases, and in this way the stock may be increased. The best time for lifting and transplanting the bulbs is after the foliage has withered.

PLATE 19.



ORNITHOGALUM PYRAMIDALE (74)
BREVOORTIA IDA-MAIA (75)
BRODIAEA LAXA (76) BRODIAEA
IXIODES (77)

GAGEA lutea.—This British plant, with small roundish bulbs, and long narrow leaves, is called the "Yellow Star of Bethlehem" on account of its yellow starry flowers, with a green central line, appearing from March to May on stalks about 6 inches high. It grows in ordinary garden soil and may be increased by offsets.

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GALANTHUS (*Snowdrop*).—The common British Snowdrop (*G. nivalis*) is an old time garden favourite, not only on account of the purity of its blossoms—almost rivalling the whiteness of the snow—but because they appear during the very dullest months of the year, often before Christmas, and lasting till the Crocuses, early Narcissi, Chionodoxas, Bulbocodiums, Leucojums, &c., come to keep them company. A few blooms are shown on [Plate 2](#), fig. 8, not because it was necessary to tell the reader what a Snowdrop was like, but to record the general appearance of other Snowdrops that are now to be met with in cultivation. The most important of these are *Elwesi*, with its varieties *globosus* and *robustus*, all of which have large flowers; *Fosteri* has been called the "King of Snowdrops" on account of its fine leaves and flowers. Other fine kinds are *Imperati*, *latifolius*, and *plicatus*, the last named recognised by its long broad and plaited leaves. Indeed there are many other varieties—including double-flowered ones—but it is doubtful if the ordinary observer would see any great difference between them and the best forms of the common Snowdrop. They all have roundish bulbs—; some larger than others, and offsets are freely produced from them. They flourish in the border or rock-garden in rich sandy soil and leaf-mould, but their natural dwelling place is in the grass, where they should be planted in hundreds and thousands and left to take care of themselves, as they are in many gardens in the kingdom.

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GALTONIA (**Hyacinthus**) **candicans.**—A noble-looking South African plant, with large roundish bulbs and strap-shaped leaves over 2 feet long. The pure white sweet-scented blossoms (shown on [Plate 20](#), fig. 78) appear during the summer months, 20 or 30 in a raceme, drooping from stout stalks about 4 feet high. **G. princeps** is somewhat similar but not so attractive in appearance, as its white flowers are faintly tinged with green. Both kinds flourish in good garden soil and should be planted in bold clumps for effect in the flower border, and in warm sunny spots, where they may remain undisturbed for several years, until it is necessary to give them more space, or to detach the offsets for increasing the stock.

GLADIOLUS (*Corn Flag; Sword Lily*).—There are several species of Gladiolus rarely seen outside botanic gardens. The florists' varieties, like *brenchleyensis*, *Colvillei*, *Childsi*, *gandavensis*, *Lemoinei*, and *nanceianus*, are much more popular owing to the brilliancy and beauty of their blossoms. *G. brenchleyensis* (practically a form of *gandavensis*) is remarkable for its glowing scarlet flowers; *G. Childsi* (raised from *gandavensis* and *Saundersi*) attains a height of four or five

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feet, and has spikes of bloom often 2 feet or more long. The blossoms are 6 to 9 inches across, and possess many shades of purple, scarlet, crimson, salmon, white, pink, yellow, often beautifully mottled and blotched in the throat ([Plate 28](#), fig. 105). *G. Colvillei* (raised from *cardinalis* and *tristis*) is an early-flowering plant about 2 feet high, with crimson purple and also pure white flowers—according to the variety. The form known as "The Bride" is the best white ([Plate 21](#), fig. 81). Other early-flowering forms are shown in figs. 82 and 83. *G. gandavensis* (raised from *cardinalis* and *psittacinus*) forms a charming group as various in colour as the *Childsi* forms, the individual flowers being variously striped and blotched with distinct colours. *G. Lemoinei* (raised from *purpureo-auratus* and *gandavensis*) is the origin of a beautiful number of hybrids, distinguished by having a large golden-yellow blotch on the lower segments, bordered with scarlet, crimson, purple, maroon, &c. ([Plate 28](#), fig. 104). The colours are as numerous and as delicate as in the *Childsi* and *gandavensis* sections. The *nanceianus* hybrids are remarkably fine plants, and are only comparable with those of the *Childsi* group, although the blossoms are not quite so large. The colours vary from purple, claret, violet, carmine, orange, red, scarlet, violet, &c., and are all spotted in various ways (see [Plate 28](#), fig. 103).

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The kinds of Gladioli just mentioned may be grown to perfection in a well-drained loamy soil, which has been deeply dug and well manured the autumn previous to planting. From the beginning to the end of March is an excellent time to plant the corms or tubers, each one being inserted in a hole made with a stout dibber, or in a drill about 4 or 5 inches deep, and about a foot apart. Having covered the corms and made the soil fairly firm, little more is needed beyond keeping weeds down, until the flower spikes begin to show in July and August. Short stakes may then be supplied so as to keep the trusses upright. To secure extra fine blossoms the plants, when well-established, should be watered two or three times a week with liquid cow-manure to which a little soot and guano has been added. During hot dry summers especially, copious waterings should be given.

PLATE 20.



GALTONIA CANDICANS (78)
SISYRINCHIUM GRANDIFLORUM (79)
BRODIAEA HOWELLI LILACINA (80)

When the flowers have faded, and the leaves begin to turn yellow, the corms may be taken up and carefully stored in a dry, airy, frost-proof place until the following March. New plants may be raised from the offsets, and also the spawn or cloves to be found at the base of the new corms. They should be detached and stored, and the following April may be sown like seeds in drills about two inches deep. The larger corms may also be carefully cut in two at planting time, the cut surfaces being dipped in powdered charcoal, soot, or freshly-slaked lime.

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Where space will permit, the following natural species of Gladioli may also be grown:—*G. blandus*, 1 to 2 feet high, white, with red markings and a yellow tube; *G. byzantinus*, 2 feet, red, shaded with violet or purple; *G. dracocephalus*, 1 to 2-1/2 feet, soft yellow, striped and spotted with purple; *G. floribundus*, 1 foot, has flowers varying from white to flesh colour and deep red.

G. oppositiflorus has white flowers, washed with rose or purple ([Plate 23](#), fig. 87); *G. psittacinus*, 3 feet, rich scarlet, lined and spotted with yellow; *G. purpureo-auratus*, 3 to 4 feet, sulphur yellow, blotched with purple; and *G. Saundersi*, 2 to 3 feet, crimson or soft scarlet, spotted with pink and white. As they are all natives of South Africa they should be planted in warm sunny

spots in March or April, and lifted the following autumn when growth has ceased.

HABRANTHUS pratensis.—A pretty Chilean plant, with ovoid bulbs about 1-1/2 inches through, and narrow leaves 1 to 1-1/2 feet long. The funnel-shaped, orange-red or scarlet blossoms appear in early summer on stems 1 to 2 feet high. Rich sandy-loam and leaf-soil, and warm sheltered spots are most suitable for this plant. In bleak localities the bulbs must be protected in winter. Increased by offsets.

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HYACINTHUS (*Hyacinth*).—The florists' Hyacinth, evolved from *H. orientalis*, has been for generations a great garden favourite, and is still amongst the most popular of bulbous plants for the decoration of the out-door garden, or for growing in conservatories, or the dwelling-house in more or less ornamental receptacles. There is a good deal of difference in the size of Hyacinth bulbs, but the reader must not imagine that the largest bulbs will throw up the best truss of flowers. Indeed it is often the case that quite a small bulb comparatively, will give a finer display than one much larger. Size, therefore, is not the main point about Hyacinth bulbs. Weight or density is the most important feature, and bulbs that are in any way soft or flabby may be regarded as useless.

Hyacinths in the Open Air.—What are known as "Bedding Hyacinths," to be had in various colours—red, rose, pink, white, blue, violet and yellow—are generally grown out of doors. They should be planted in October, or not later than November, 5 to 6 inches deep, and 6 to 8 inches apart, care being taken when planting round, oval, oblong, or other shaped beds to keep the lines or curves equidistant so as to secure uniformity in the results. The varieties should not be mixed when formal beds are planted. In vacant spaces in the flower border, however, mixed Hyacinths look very well. Although these Hyacinths will grow well in ordinary good garden soil that has been deeply dug, and contains some well-decayed manure, it may be said that a light sandy loam that has had some old cow-manure incorporated with it some weeks previously is regarded as the best. When the soil is naturally heavy it must be well turned up, and have plenty of sand or grit mixed with it as well as old manure. In such a soil, a further precaution may be taken to have a handful of sand placed in the hole under each bulb to further improve the drainage.

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Combinations with out-door Hyacinths are sometimes made by covering the surface of the beds with such plants as Forget-me-Nots, Polyanthus or Primroses, Silenes, White Arabis, Yellow Alyssum, and sometimes Narcissi bulbs are planted alternately with the Hyacinths, the object in all cases being to produce a fine effect and contrast in colours in spring. When the plants are in bloom they require but little attention, except perhaps a slender stick here and there to some flower-truss that has been blown down by the wind, or topples over with its own weight. As soon as the blossoms have withered, the flower stems should be cut away, leaving the still green leaves to assimilate food until they begin to turn yellow. The yellowing leaves indicate that the bulbs may be taken up, dried, and cleaned, and stored away in cool airy places until the following September or October. As Hyacinths, however, deteriorate in our fickle climate, it is better to buy new bulbs each year for planting formal beds, while the old ones may be planted in ordinary flower border or shrubbery.

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PLATE 21.



Hyacinths in Glasses, &c.—Ornamental bowls, glasses, vases, &c., of various designs afford an easy and interesting means for growing Hyacinths in the dwelling house. Many fail to have good results with Hyacinths grown in these receptacles because they allow the bulbs to touch the water, or they place them in too high a temperature to begin with. The bulbs should not actually touch the water, the base being little more than 1/8-inch away from the surface. They should then be stood in a dark place with a temperature of about 40° to 45° F., until roots have developed into the water. The plants may then be exposed to more light, after which all that is necessary is to change the water occasionally, about once a week, so that the roots may secure a fresh supply of oxygen. The finest bulbs give the best results naturally when grown in this way. What are known as "Miniature Hyacinths" are suitable for growing in bowls, vases, &c., in moist moss and charcoal, or in Jadoo fibre, or even in coco-nut fibre. Indeed, Hyacinths generally may be grown more easily, perhaps, in this way, instead of in water, the only point in mind being to get the roots started in a cool place before the flower-stem and leaves begin to grow.

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Hyacinths in Pots.—For greenhouse and conservatory decoration Hyacinths are most useful. One large bulb or three smaller ones may be placed in a 5-inch pot in light sandy soil, the top of the bulbs being well above the surface. The pots should be placed in the open air and covered with fine ashes or coco-nut fibre. Roots soon develop, after which the bulbs may be brought in as required, and can be had in blossom long before those in the open ground begin to appear. In warm greenhouses the graceful Roman and Italian Hyacinths may be flowered in the same way.

For a selection of Hyacinths of various colours the reader will find it best to consult a good bulb catalogue or a nurseryman. [Plate 11](#) shows a few varieties, but the size of the page renders it impossible to show them in all their natural grandeur.

Besides the florist's Hyacinths there are one or two natural species that are worth growing in the rockery, flower border, or in the grass. These are the Spanish Hyacinth (*H. amethystinus*), with bright blue drooping blossoms, or white in the variety *albus*, in May and June (see [Plate 7](#), fig. 30). The other is *H. azureus*, which very much resembles one of the Muscaris, and sends up its sky-blue drooping flowers as early as February (see [Plate 2](#), fig. 10).

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Hyacinths may be increased by offsets. These may be stored in dry sand until planting time in the autumn, when they should be placed in beds by themselves, and will reach the flowering stage, with care, in two or three seasons. Full-sized bulbs are induced to develop bulblets by cutting them cross-wise, about half-way through from the base, or scooping the bottom out into a hollow. The bulbs are placed to dry after cutting, and by and bye the bulblets appear. They may be detached and planted like the offsets.

IRIS (Flag).—As the various kinds of Irises, known as "rhizomatous," "bearded," "beardless," and "oncocyclous or cushion," have already been dealt with in "A PRACTICAL GUIDE TO GARDEN PLANTS," and in the companion volume to this, "BEAUTIFUL GARDEN FLOWERS," it is only necessary here to refer to the "Bulbous" Irises, as coming appropriately within the scope of this work. The best-known examples of Bulbous, or Xiphion Irises, as they are sometimes called, are the Spanish Iris (*I. Xiphium*) and the English Iris (*I. xiphoides*). Varieties of the last-named are shown on [Plate 14](#), while forms of the Spanish Iris will be found in "BEAUTIFUL GARDEN FLOWERS," [Plate 20](#), and also in this work, [Plate 15](#). Besides these well-known examples of Bulbous Irises, there are many others now well-known. They are, however, much smaller in stature as a rule, more fragile, so utterly distinct in appearance from the ordinary Flag Irises, and so curiously and beautifully coloured, that many amateurs liken them to orchids, although, perhaps, they can scarcely be termed "[Poor Men's](#)" Orchids like their commoner relatives. On [Plate 3](#), five species of charming and early flowering Bulbous Irises are shown, and a glance will show that no description could do real justice to the charming beauty of the blossoms.

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The following comprise some of the best kinds of Bulbous Irises:—*I. alata*, and its numerous varieties, bright lilac-purple to white, October to December; *I. Bakeriana* ([fig. 12](#)), sky blue and white, blotched with violet, January to March; *I. Boissieri*, reddish purple, June; *I. caucasica*, pale yellow, February and March; *I. Danfordiæ*, or (*Bornmüllieri*) golden yellow, February ([fig. 14](#)); *I. juncea*, golden-yellow, fragrant, June and July; *I. Kolpakowskyana* ([fig. 13](#)) has reddish-purple and golden-yellow, with purple veins in March; *I. orchoides* has very large bulbs and bright-yellow flowers in March and April; *I. persica* ([fig. 15](#)), and its varieties, with light purple, lavender, lilac, sea-green, and other shades of colour, and usually distinctly spotted and sweet-scented during February and March; *I. pumila*, lilac, purple, or deep violet, April. *I. reticulata* has deep violet fragrant flowers in February and March; there are very many distinct varieties of it, such as *cyanea*, bright blue; *Histris*, blue, blotched with golden-yellow, December to March ([fig. 11](#)); *Histrioides*, bright blue tinted with violet; *humilis*, rich red, purple, orange, and white; *Krelagei*, claret purple and yellow; *purpurea*, reddish purple; *sophenensis*, varying from reddish and bluish purple to lilac and lavender; *I. Rosenbachiana*, variable in colour, purple, yellow, and white to rich crimson and purple blue, March and April; *I. sindjarensis* has sweet-scented slaty-blue flowers; and *I. stenophylla* or *Heldreichi*, mauve purple, February and March.

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CALOCHORTUS VENUSTUS (84)
CALOCHORTUS ALBUS (85)
CALOCHORTUS PULCHELLUS (86)

The Spanish and English Irises flourish in ordinary good and well-drained garden soil containing a fair amount of sand or grit, and humus. The English varieties on the whole require a somewhat moister situation and rather heavier soil than the Spanish. They flower profusely, and their many shades of colour make the long-stalked blossoms great favourites for decorative purposes. The different colours can be had separately from the nurseryman or florist, but a mixed collection will afford great pleasure to those who do not wish to be burdened with the fancy names given in catalogues.

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The smaller kinds of Bulbous Irises—like those shown on [Plate 3](#)—require to be treated a little more carefully than the Spanish and English varieties. Indeed many of the choicer and rarer varieties are safer grown in pots of rich sandy soil in cold frames. They flower early in the year, and, if exposed in the open border or rock-garden, the blossoms would be probably not only considerably disfigured, but the cold rains and frosts might kill the bulbs. When grown in the open air, warm sheltered spots should be selected for them, and the soil should be a well-drained sandy loam with a little leaf-soil. If the plants are flourishing, they may be left in the same spot for three or four seasons. After this it is better to lift them when the leaves have withered, and then any offsets may be detached to increase the stock. As a rule the best time to plant bulbous Irises is in September or October, but not later.

IXIA (African Corn Lily).—If the reader will turn to Plate 1, he or she will at once admit that the Ixias are a charming class of bulbous plants. The picture was prepared from specimens kindly supplied by Messrs. Wallace & Co., of Colchester. There are many other shades and combinations of colour besides those represented, and happy would be the amateur who succeeded in raising such lovely flowers in his garden—either in the open air or under glass.

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The Ixias are natives of South Africa, and have smooth or fibrous-coated, round and flattish corms, about an inch in diameter. The sword-shaped leaves are strongly veined, and the beautiful blossoms are borne on stems 1 to 2 feet, during June and July. Some of the best varieties are shown on Plate 1, and attention is especially directed to the charming soft sea-green flowers of *I. viridiflora*, having a dark blotch in the centre. To these may be added the deep-red or crimson-flowered *speciosa* or *crateroides*.

It is a pity that such elegant flowers cannot be grown in the open air in every part of the British Islands. Unfortunately they are not hardy enough for this, and consequently the best results out of doors are only likely to be secured in the mildest parts of the kingdom. The best time to plant is from September to November. The corms should be about 3 inches beneath the surface of the soil. This should be a light, sandy loam; if inclined to be heavy, it should be raised in small beds above the general level to secure better drainage, and a little sand may be placed round each corm, also with the same object in view. In the event of cold rains and frosts in winter, the bulbs should be protected with litter, bracken, &c., to be removed at the end of February or March when the leaves begin to appear.

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Where it is impossible to grow Ixias successfully in the open air, they may be grown in pots in

cold frames or for the decoration of the greenhouse or conservatory. The corms should be potted in September or October, and kept under ashes or fibre in the open until roots have developed, after which they may be brought inside to develop. Ixias are best increased by offsets.

IXIOLIRION montanum.—This beautiful plant (also known as *I. Pallasii* and *I. tataricum*) has long-necked ovoid bulbs about an inch in diameter, and tufts of grassy leaves. The charming lilac blossoms, as shown on [Plate 18](#), fig. 73, are borne in early summer in loose clusters on stems a foot or more high, and are very useful in a cut state. There is a good deal of variation in the colour, which has led to different names being given from time to time.

I. Kolpakowskyanum is a rare and little known species from Turkestan. It has much smaller bulbs than *montanum*, and the blue or whitish blossoms appear somewhat earlier in the year.

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Ixiolirions may be grown successfully in the milder parts of the kingdom in warm sheltered spots in the flower-border or rock-garden. They should be planted about 3 inches deep in September or October in light sandy soil, and in cold localities should be protected with litter, &c., in winter.

LAPEYROUSIA (Anomatheca) cruenta.—A pretty South African plant, 6 to 12 inches high, with irregular roundish corms about 2 inches in diameter, and narrow sword-shaped leaves. The deep crimson or blood-red blossoms, with a still deeper-coloured blotch on each of the three inner segments, appear in late summer in loose clusters on slender stalks, and are very striking when seen in large masses. This species, although perhaps a trifle hardier, may be grown in the same way as the Ixias (see [p. 90](#)). The corms, however, being larger, should be planted about 6 inches deep, and new plants may be secured by detaching the offsets when the leaves have withered.

PLATE 23.



**GLADIOLUS OPPOSITIFLORUS (87)
LILIUM CANADENSE, VARS. (88-89)**

LEUCOJUM (Snowflake).—Beautiful plants closely related to the Snowdrops, and somewhat resembling them in bulbs, and leaves, and flowers. The Spring Snowflake (*L. vernalis*) is the first of the group to produce its drooping sweet-scented blossoms in March and April. They are usually borne singly on a slender stalk 6 to 12 inches high, and are white in colour with more or less conspicuous green tips to the petals, as shown in [Plate 12](#), fig. 47. The next best-known kind is the Summer Snowflake—the paradoxical name of *L. æstivum*. The pure white flowers, tipped with green, appear in May and June, sometimes as many as six being borne on a stem. *L. pulchellum* is closely related to this species, but has narrower leaves, and produces its smaller blossoms somewhat later. The pretty little plants, formerly known as *Acis*, are now included with the Leucojums. They all have small white drooping blossoms on slender stems 6 to 12 inches high, those of *hyemalis* and *trichophylla*, appearing in April, while those of *autumnalis* appear in autumn.

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The Snowflakes flourish in rich sandy soil, and appear to advantage in the rock-garden or in the grass, where they may be massed in the same way as Snowdrops, &c. Most of them are easily

increased by offsets.

LILIUM (*Lily*).—Of all the hardy bulbous plants that may be grown in the open air in our climate, the Lilies may be looked upon as the most noble. Not only are many of them giants in stature among other hardy bulbs, but there is nothing to equal their individual blossoms in size, or their general gracefulness of appearance when borne collectively on the leafy stems.

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They differ in another respect from other bulbous plants described in this book, and that is in having "scaly" bulbs as shown on [page 12](#). All the other plants have either bulbs with several coats rolled round each other (tunicated), or else they are solid, when they are known as corms. But in the Lilies neither of these two types appears. What are known as the "scales" are fleshy leaves that have been specially modified under the surface of the soil to act as reservoirs or storehouses for the surplus food that the green aërial leaves on the stems have elaborated for them during the daytime.

There are a large number of species of *Lilium*, differing greatly in size and blossom, and it is therefore only natural to expect the bulbs to vary a good deal also. Indeed, there are very large and very small bulbs, comparatively speaking, and they display a good deal of difference in their vegetation, and in producing offsets. For example, most kinds develop new bulbs or offsets round the base of the older bulb, while others, like *canadense*, *Grayi*, *pardalinum*, *Parryi*, and *superbum*, develop their new bulbs along creeping stems or rhizomes as shown in the sketch on [page 31](#).

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Useful as the offsets are for the purpose of increasing the stock, some kinds, notably *bulbiferum*, *Browni*, *speciosum*, and *tigrinum*, often develop what are called "bulbils" in the axils of the aërial leaves. These bulbils are small bulb-like bodies, which, when sown and covered with soil as if they were large seeds, will develop into flowering bulbs in the course of two or three years. The origin of these bulbils is more fully dealt with at [p. 32](#).

Besides these two fairly easy means of increasing the stock of Lilies, many kinds may be also raised from seeds, which at the end of three, six, or eight years, will have produced bulbs large enough to throw up flowering stems. Raising Lilies from seed is more common now than it used to be, especially in America, where some lovely hybrids have been raised, such as *Burbanki*, *Dalhansoni*, *Marhan*, &c.

Distribution of Lilies.—As *Liliums* are distributed throughout all parts of the north temperate hemisphere—extending from California in the west, to China and Japan in the east, across the continents of North America, Europe, and Asia—they are therefore found naturally growing in different soils, and under various climatic conditions, in all degrees of sunshine and shadow, drought and moisture. In the British flower garden they are, as a rule, best in positions where they will be shaded from the hot mid-day sun, as the flowers will last much longer than if exposed too much. They should not, however, be planted in deep shade under trees, or among their roots, as the latter would absorb too much food and moisture from the Lilies, while the overhanging boughs would prevent the rain from reaching the bulbs in sufficient quantity. During vigorous growth, Lilies like plenty of water, but the soil must at the same time be so well drained that it shall readily pass away from the bulbs. ("A PRACTICAL GUIDE TO GARDEN PLANTS.")

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Time and Depth of Planting.—If bulbs can be secured early in autumn, say in September or October, that would be the best time to plant Lilies. But very often bulbs of certain kinds cannot be secured till spring, so that planting must necessarily take place then. The depth at which Lily bulbs are to be planted depends greatly upon the size of the individual bulbs; some kinds are planted about 6 inches deep, while others require a depth of 9 or 10 inches. A safe general rule to follow, is to cover the bulbs with about twice their own depth of soil when planting in the open air. If a piece of peat be placed beneath each bulb at the time of planting, and a layer of sand about half-an-inch thick round them, they will root much more freely. An exception to the general rule seems to be *L. giganteum* (see [p. 100](#)). When *Liliums* are hardy enough to be left undisturbed for several seasons in the same place, a good top-dressing or "mulching" of well-decayed manure in autumn will be of great advantage in replenishing the food for the roots.

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So far as culture is concerned, *Liliums* may be arranged in three distinct groups as follows:—

I. LILIES THAT FLOURISH IN ORDINARY GOOD GARDEN SOIL, OR BETTER STILL, IN STRONG LOAM THAT HAS BEEN DEEPLY DUG AND ENRICHED WITH WELL-DECAYED MANURE IN ADVANCE.

Alexandrae, 2 to 3 feet high, with pure white flowers, 6 to 8 inches across in July and August.

Batemanniæ, 3 to 5 feet high, flowers rich apricot, 4 to 5 inches across.

Bulbiferum, 2 to 4 feet high, with erect crimson flowers spotted with brown; May and June.

Candidum, the well-known "Madonna Lily," 3 to 5 feet high, with sweet-scented pure-white flowers, 3 to 4 inches across, and ten to thirty on an erect truss in June. When subject to disease in any locality, it is almost useless attempting to grow this Lily. (See [Plate 16](#), fig. 64).

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Chalcedonicum, a fine "Turk's Cap" Lily, 2 to 3 feet high, with drooping bright scarlet flowers in July and August; there are several varieties, including *maculatum*, a spotted one.

Croceum, the "Orange or Saffron Lily," with somewhat cobwebby stems 3 to 6 feet high, and golden orange, funnel-shaped flowers, spotted with purple at the base; June and July. (See [Plate 17](#), fig. 67).

Dalhansonii, a pretty hybrid between *dalmaticum* and *Hansonii*, about 5 feet high, with dark brownish-purple flowers in June and July.

Dauricum or *davuricum* grows 2 to 3 feet high, and has orange-scarlet flowers spotted with blackish-purple.

Henryi, 3 to 6 feet high (sometimes much taller) with jagged-surfaced orange-red flowers from July to September.

Marhan, a lovely hybrid between the white-flowered *Martagon* and *Hansonii*. It grows 4 to 5 feet high, and has clear orange-yellow flowers with red-brown streaks and spots.

Pomponium, a fine "Turk's Cap" species, 2 to 3 feet high, with drooping, bright-red, orange-yellow, flowers.

PLATE 24.



**LILIUM TIGRINUM (90) BRODIAEA
BRIDGESI (91)**

Pyrenaicum is closely related to *pomponium*, but is somewhat taller, and has bright-yellow flowers, blotched with crimson at the base (see [Plate 18](#), fig. 71). [Pg 99]

Rubellum, a beautiful species about 2 feet high, with bell-shaped rosy-pink flowers in June (see [Plate 26](#), fig. 97).

Testaceum (or *excelsum*), a fine Lily, 5 to 6 feet high, with somewhat drooping, soft, buff-yellow or apricot-coloured flowers, dotted with orange-red.

Umbellatum. A number of Lilies are grouped under this name, being apparently hybrid varieties between *croceum*, *davuricum*, and *elegans*. The prevailing colours are orange, orange-red, and apricot, with darkly-spotted and unspotted forms.

Washingtonianum grows 3 to 6 feet high, and has sweet-scented, drooping, funnel-shaped flowers of a pure white tinged with lilac or purple. The soil should be particularly well-drained for this Californian Lily.

II. LILIES THAT FLOURISH IN SANDY LOAM, PEAT, AND LEAF-SOIL.

Auratum, a well-known Lily, 2 to 6 feet high, with ivory-white flowers, often 9 to 12 inches across, with a conspicuous yellow band down the centre, and deep purple blotches all over the inner surface. There are several varieties, some poor, some excellent, amongst the latter being *platyphyllum* with very large heavily-spotted flowers. There is a white unspotted form of this [Pg 100]

called *virginale*, closely related to which is *Wittei*, the flowers of which, however, are stained with yellow down the centre.

Browni, 2 to 4 feet high, with bell-shaped flowers, pure white with a central purple line.

Concolor, grows 1 to 3 feet high, and has bright scarlet flowers. There are several varieties, such as *Buschianum* and the dwarf *pulchellum*, scarlet, spotted with black; *Coridion*, bright yellow, spotted with red; *Partheneion*, orange-yellow, faintly spotted; and *luteum*, yellow, spotted with purple-red.

Elegans (or *Thunbergianum*), 1 to 2 feet high, with erect cup-shaped scarlet flowers, slightly spotted with purple at the base.

Giganteum, a gigantic Himalayan Lily, with stems from 6 to 10, and sometimes 14 feet high, furnished with large heart-shaped oval leaves. The flower stem is 1 to 2 feet long and has drooping funnel-shaped blossoms of a greenish-white, suffused with violet-purple in the throat. Unlike other Liliiums, the large conical bulbs of this species are not buried deeply in the soil. They are sunk in the soil about one-third of their depth, and are usually planted in April or May. In the event of spring frosts, the bulbs should be protected with dry leaves or litter.

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Hansonii, 3 to 4 feet high, flowers drooping, bright orange yellow, and heavily spotted with dark purple-brown (see [Plate 25](#), fig. 93).

Humboldti (or *Bloomerianum*), 4 to 8 feet high, flowers orange-yellow, drooping, spotted with purple at the base; more conspicuous in the variety *ocellatum*, the yellow blossoms of which are tipped with crimson or purple.

Japonicum, 1 to 3 feet high, with sweet-scented pure white flowers faintly tinged with purple outside.

Kewense, a beautiful hybrid between *Henryi* and a variety of *Browni*; it grows about 6 feet high, and has buff-coloured flowers about 8 inches across, fading off to creamy white at the tips.

Krameri is like *japonicum*, but taller, and with pink flowers.

Leichtlini, 3 to 4 feet high, with drooping citron-yellow flowers heavily spotted with purple.

Longiflorum, a very handsome Lily, 2 to 3 feet high, with large tubular pure white flowers. There are many so-called varieties of this species, including *Harrisi*, *eximium*, and *Takesima*—all very popular for forcing in pots for greenhouses (see [Plate 25](#), fig. 94).

Martagon, the "Turk's Cap," Lily, 2 to 3 feet high, with many tiers of drooping purple-red or violet-rose flowers, spotted with carmine, but white in the tall growing variety *album* (see [Plate 26](#), fig. 95).

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Monadelphum (or *Loddigesianum*) is a vigorous Lily, 3 to 5 feet high, with soft bright yellow flowers, which in the variety *Szovitsianum* (or *colchicum*) are spotted with blackish-purple (see [Plate 26](#), fig. 98).

Pardalinum, known as the "Leopard Lily," grows 3 to 8 feet high, and has drooping orange-red flowers spotted with dark purple at the base. There are several varieties, some being more highly coloured and spotted than others.

Roezli, 2 to 3 feet high, with dark blotched orange-red flowers.

Speciosum, also well-known as *lancifolium*, grows 2 to 3 feet high, and has white flowers suffused with rose, the lower portion of the segments being deeper in colour, and covered with papillæ. There are many varieties such as *album*, white; *Krätzeri*, white tinged with green down the centre; *Melpomene*, deep crimson-purple, &c.

Tenuifolium, so called from its grass-like leaves, grows 1 to 2 feet high, and has small drooping scarlet blossoms (see [Plate 25](#), fig. 92).

Tigrinum, the "Tiger Lily," with woolly stems 2 to 4 feet high, and deep orange-red flowers heavily spotted with blackish-purple. (See [Plate 24](#), fig. 90.)

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III. LILIES THAT FLOURISH IN VERY MOIST BUT WELL-DRAINED SANDY LOAM, PEAT, AND LEAF-SOIL. THEY ARE EXCELLENT FOR PLANTING IN SHADY BORDERS, UNDER NORTH WALLS, OR BY THE SIDE OF PONDS, &C.

Burbanki, a fine hybrid between *pardalinum* and *Parryi*. Flowers, pale orange-yellow, spotted with chocolate and flushed with crimson at the tips. A single stem often has as many as twenty or thirty blooms upon it.

Canadense, a rhizomatous "Turk's Cap" Lily, 2 to 4 feet high, with drooping funnel-shaped flowers varying in colour from bright orange-red to pale red, the upper portion of the segments being heavily spotted with purple-brown. (See [Plate 23](#), figs. 88 and 89.) There are several forms such as *rubrum*, *flavum*, *parvum*, &c.

Catesbæi, an elegant species, 1 to 2 feet high, having erect bell-shaped flowers of a bright orange-red heavily spotted with purple.

Cordifolium, a very distinct-looking Lily, 3 to 4 feet high, having broadly heart-shaped ovate leaves, and tubular white flowers with violet-brown spots at the base. [Pg 104]

Grayi is closely related to *canadense*, but has deep crimson flowers heavily blotched with purple at the yellowish base.

Maritimum is a pretty Lily, 3 to 5 feet high, with small deep red bell-shaped flowers spotted with dark purple.

Parryi is another rhizomatous Lily, 2 to 6 feet high. The more or less drooping flowers are citron-yellow, spotted with purple-brown, and are sweetly fragrant.

Superbum is known as the "Swamp Lily" of North America. It has creeping rhizomes which produce bulbs at intervals, and the violet-purple stems grow 4 to 10 feet high. The drooping orange-red flowers, sometimes as many as twenty to forty on a stem, are heavily spotted with violet-purple. The variety *carolinianum* (also known as *autumnale* and *Michauxianum*) has flowers like those of the type, but the plants only grow about 2 feet high.

PLATE 25.



**LILIUM TENUIFOLIUM (92) LILIUM
HANSONI (93) LILIUM
LONGIFLORUM (94)**

Most of the Lilies described in these three sections may be grown in beds by themselves on the grass, or they may be planted in clumps in borders or shrubberies where they will have plenty of space and enough sunshine to enable them to develop fully. The peat-loving kinds—those in the second and third sections—are excellent for planting amongst such plants as Rhododendrons, Azaleas, Kalmias, and other peat-loving shrubs. [Pg 105]

LYCORIS squamigera.—This distinct Japanese plant is closely related to the Belladonna Lily (see p. 51). It has rather long-necked roundish bulbs, 2 to 3 inches in diameter, and strap-shaped leaves about a foot long. From July to September, after the leaves have withered, the large sweet-scented rosy-lilac flowers (see Plate 32, fig. 116) are borne on a stout stalk 2 to 3 feet high. This plant may be grown out of doors in the milder parts of the kingdom in warm sheltered spots, such as against a wall on a south border. It likes rich well-drained sandy loam and leaf-soil, but grows freely in ordinary good garden soil. There are other species that may probably succeed in the open air in the same way, such as *aurea*, golden-yellow; *straminea*, pale yellow with a pink central line and red dots; and *radiata*, bright red.

MERENDERA Bulbocodium.—A pretty Pyrenean plant closely related to *Bulbocodium vernum*. It grows only 3 or 4 inches high, and produces its rosy-lilac funnel-shaped flowers in autumn at the same time as some of the true Colchicums. The narrow sickle-shaped leaves appear after the flowers are over and remain fresh and green till spring. There are a few other species, but they are practically unknown in gardens. The Merendera may be grown exactly in the same way as the Colchicums, in the border, rock-garden, or best of all in the grass. The stock may be increased by [Pg 106]

offsets and seeds.

MILLA biflora.—There is now only one *Milla*, the plants formerly known under that name being now included in the genus *Brodiaea* (see [p. 56](#)). *M. biflora* has rather small bulbs with fleshy roots and narrow, grass-like, blue-green leaves. The pretty pure white salver-shaped blossoms appear in August and September usually two to four on stems about 6 inches high. Being a native of Mexico, *M. biflora* should be grown in warm sheltered spots in the rock-garden or border, in a rich sandy loam, the bulbs being planted about 4 inches deep. Increased by offsets.

MUSCARI (*Grape Hyacinth*).—A charming class of plants with roundish bulbs about 1 inch in diameter, narrow leaves, and conical clusters of urn-shaped or tubular blossoms drooping from stems 3 to 6 inches high. Although the Grape Hyacinths may be easily grown in patches or edgings in the ordinary flower border, there is no place that shows off their sheets of brilliant blue blossoms so well as a grassy bank, or a nook in the rockery, where they should be planted in large numbers. They naturally like a rich and well drained soil with plenty of grit or sand in it, and some leaf-soil. The bulbs should be planted about 3 inches deep in September and October, and when naturalised in the grass may be left for several seasons without being disturbed. Most of the kinds blossom in March, April, and May, and are easily increased by offsets. Seeds may also be sown (see [p. 36](#)).

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The following is a selection of the best kinds. The flowers are blue in all cases, except where otherwise mentioned, and the general appearance of the blossoms is as shown by *M. conicum* in [Plate 12](#), fig. 48:—*Armeniacum*; *botryoides*, with a white-flowered variety *album*; *comosum*, the monstrous form of which, with twisted and wavy bluish-violet filaments, is known as the [Ostrich Feather](#) Hyacinth; *conicum* (see [Plate 12](#), fig. 48), of which there is a beautiful brilliant blue variety called "Heavenly Blue." *Heldreichi*, like *botryoides*, but larger; *Maweanum*; *neglectum*; *racemosum*; *amphibolus* porcelain blue; and *Szovitsianum*.

There are other colours besides blue among the Grape Hyacinths. Thus the "[Musk Hyacinth](#)" (*M. moschatum*) has sweet-scented blossoms which change from purple at first to greenish-yellow tinged with violet. It has a yellow flowered variety called *flavum* or *macrocarpum*. Some forms of *neglectum* are salmon-pink, while the blossoms of *M. paradoxum* might be described almost as black.

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NARCISSUS (*Daffodil*).—What so charming in the spring-time as "a host of Golden Daffodils"? The varieties are now almost legion, and they are still being added to by enthusiastic hybridists in various parts of the kingdom. The crossing of one section with another may possibly worry the botanist, but there is no fear that the gardener will not welcome any new variety that may be raised. Although thousands of the older Daffodils may be bought for a few shillings, the rarer varieties still command a respectably high price, and will naturally continue to do so until the stock has been considerably increased.

There is scarcely a nook in the garden, large or small, where Daffodils cannot be grown. And yet it is astonishing to note their general absence from suburban gardens, where they would not only grow freely, but also make a cheerful picture in the spring-time.

PLATE 26.



**LILIUM MARTAGON ALBUM (95)
WATSONIA ARDERNEI (96) LILIUM
RUBELLUM (97) LILIUM COLCHICUM
(98)**

Daffodils—with the exception, perhaps, of a very few varieties—require as little attention, and even less than Snowdrops or Crocuses. Once planted they may be left undisturbed for years, and as each season comes round they gaily shoot their blue-green strap-shaped leaves and creamy or golden blossoms through the ground.

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They grow in almost any soil, but prefer a rather stiff and well-drained loam. They are appropriate in any situation in the flower border or rockery. But their natural position is undoubtedly in the grass, or—

"Beside the lake, beneath the trees,
Fluttering and dancing in the breeze,"

As Wordsworth has it.

When to Plant.—The best time to plant Daffodil bulbs is from the end of August to November. As there is a great difference in the size of the bulbs, according to the variety, the depth of planting should vary accordingly. Thus bulbs 1 to 2 inches deep from top of neck to base should be planted quite 3 or 4 inches deep, while larger ones will be planted 4 to 6 inches deep in proportion, and about the same distance apart, except, of course, when they are used between other plants like Tulips, Wallflowers, Polyanthuses, &c., for a combination display in spring.

Most of the Daffodils are valuable for cutting and decorative purposes generally when in season, and when one has the convenience of a greenhouse—cold or otherwise—the flowering period can be extended from Christmas onwards.

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Daffodils are most easily increased by the offsets from the old bulbs. These may be lifted in early summer, when the leaves have begun to turn yellow. Seeds may also be sown when ripe (see [page 36](#)), but to secure them the plants must be left much longer in the ground, so as to mature them.

Nearly all kinds of Daffodils—especially those having only one flower on a stem—may be grown in the open air. There are hundreds of varieties to choose from, but the uninitiated may start with such kinds as the beautiful white and flat-flowered "Poet's Narcissus" (*N. poeticus*), which is also called the "Pheasant's Eye" Narcissus, because of the crimson and orange circles round the rim of the flat saucer-like "corona" in the centre (see [Plate 7](#), fig. 29). There are several varieties of the Poet's Narcissus, one of the best for ordinary purposes being *ornatus*. Where the soil is particularly rich and well-drained the double-flowered variety, called the "Gardenia" Narcissus, owing to the shape of its beautiful white blossoms (see [Plate 7](#), fig. 28), may be grown. Unfortunately this variety often comes "blind," that is, the blossoms remain undeveloped in the papery sheath on top of the stem. To check this the bulbs are best lifted and transplanted early to fresh soil. Another popular and easily-grown Daffodil is the common Double Yellow one known as *Telamonius plenus* or *Van Sion*. It is a form of the Tenby Daffodil (*N. obvallaris*) which is a single form with beautiful yellow flowers, having a large "trumpet" or corona in the centre. Closely

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related to this is the Great Spanish Daffodil (*N. major*) which has large bright lemon-yellow flowers, which are still larger and of richer yellow in the variety *maximus*.

"Ajax" Daffodils.—To these may be added the numerous forms, of which the common Lent Lily (also called "Ajax" or "Trumpet Daffodil") is the type, and which has pale sulphur-yellow blossoms with a lemon-yellow "trumpet." Some of the finest Daffodils, with large spreading flowers and correspondingly large and deep trumpets, belong to this section, among which may be mentioned *Ard Righ* or *Yellow King*, *C. W. Cowan*, *Colleen Bawn*, *Emperor*, *Glory of Leiden*, *Golden Spur*, *Henry Irving*, *Hudibras*, *John Nelson*, *Madame de Graaff* (see [Plate 4](#), fig. 17), *Monarch*, *W. Goldring*, &c. All these have single flowers varying in colour from almost pure white (as in *C. W. Cowan*, *Colleen Bawn*, and *Madame de Graaff*) to deep golden-yellow in many of the other varieties. There are a few double-flowered forms of the "Lent Lily," the best known being *Capax*, lemon-yellow; *grandiplenus*, deep yellow, *plenissimus*, and the Old Double Lent Lily grown in Gerarde's garden over 300 years ago.

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"Bicolor" Daffodils.—Another very fine group of Trumpet Daffodils are those known as "bicolors," so called because the spreading segments are one colour (generally white or creamy), while the trumpet is another colour (usually some shade of soft or deep yellow). Amongst the most popular forms in this group may be mentioned *Ellen Willmott* (see [Plate 4](#), fig. 16), *Empress*, *Grandee*, *Horsfieldi* (see [Plate 4](#), fig. 18), *Mrs. J. B. M. Camm*, *Mrs. Morland Crossfield*, *Mrs. Walter T. Ware*, *Princeps* or *Irish Giant*, *Victoria*, and *Weardale Perfection* (see [Plate 6](#), fig. 26).

The "**Star Daffodils**" (*N. incomparabilis*) have spreading starry petals, and a cup or chalice-like corona or trumpet in the centre. They are a very free growing group, the commoner kinds of which (such as *Autocrat*, *Cynosure*, *Stella*) may be naturalised in thousands in the grass, where they may be seen at "a glance tossing their heads in sprightly dance." Some other very fine forms are *C. J. Backhouse*, *Frank Miles*, *Geo. Nicholson*, *Gloria Mundi* (see [Plate 5](#), fig. 21), *Lulworth* (see [Plate 6](#), fig. 27), *Mary Anderson*, *Sir Watkin* (see [Plate 5](#), fig. 23), and *Princess Mary of Cambridge* (see [Plate 5](#), fig. 21), &c., but there are many others. There are also several double varieties of Star Daffodils, the most common being "[Butter and Eggs](#)," *Orange Phoenix* (or *Eggs and Bacon*) and *Sulphur Phoenix* (or *Codlins and Cream*).

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There are many other kinds of Daffodils which have only one flower on a stem, many of them being natural or artificial hybrids. Space will not permit detailed descriptions, but the following may be looked upon as the best:—*Backhousei*, *Barri* (with several forms), *Bernardi*, *Burbidgei*, (with several forms), *gracilis*, *Humei*, *intermedius*, *Johnstoni* (with several forms), *Leedsi* (with several fine forms), *Macleayi*, *moschatus* (with several forms, the best being *cernuus*), *muticus*, and *Nelsoni* (with several forms).

In the foregoing sections the blossoms are all of a fairly large size, and borne on stalks a foot or more high. There is, however a charming group in which the blossoms are in most cases comparatively small and the flower stalks short. These kinds are valuable for planting in bold masses in partially shaded places in the rockery, or in short grass.

N. cyclamineus is a charming little Daffodil. It belongs to the Lent Lily group botanically. The blossoms, however, are much smaller; the segments being lemon-yellow, and abruptly turned back upon the stalk from the orange-yellow cylindrical "trumpet." (See [Plate 5](#), fig. 19.)

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N. minor is another miniature form of Lent Lily, with gracefully-twisted sulphur-yellow segments surrounding a deeper yellow spreading "trumpet." The variety *minimus* is smaller still, with rich yellow flowers, while *plenus* (or *Rip Van Winkle*) is a double variety.

One kind that differs conspicuously from all others is the "[Hooped Petticoat](#)" or "Medusa Trumpet" Daffodil (*N. Bulbocodium*), at one time considered a distinct genus (*Corbularia*). It is a charming species, having bright-yellow flowers, the chief characteristic of which is the cone-like or broadly funnel-shaped trumpet. There are several varieties, such as *citrinus* (lemon-yellow), *conspicuus* (golden-yellow), *Graellsii* (primrose-yellow), *monophyllus* (snow-white, leaves solitary), *nivalis*, (orange-yellow).

PLATE 27.



**WATSONIA MERIANA (99) WATSONIA
ALBA (100) WATSONIA ANGUSTA
(101) MONTBRETIA
CROCOSMIÆFLORA (102)**

Polyanthus or Tazetta Narcissus.—Passing from the Daffodils with solitary flowers on a stalk, we come to a small group in which several blossoms adorn the top of the stem. The most important of these is perhaps the Polyanthus or Bunch Narcissus (*N. Tazetta*) which was well-known to the old Greek and Roman poets, although in a wild state it is met with eastwards across Europe and Asia, to China and Japan. The typical *N. Tazetta* has 4 to 8 flowers on top of the stem, the spreading segments being pure white and the cup-shaped corona lemon-yellow. There are many varieties, and although the individual blossoms are not very large, they are sometimes produced in much larger numbers than the type. The best-known varieties are the *Scilly White*, *Grand Soleil d'or*, *Grand Monarque* (Plate 6, figs. 24 and 25), and the *Paper White*—all largely grown in the open air in the Scilly Isles—but rather too tender for out-door cultivation in less favoured parts of the kingdom.

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Of late years, a Chinese form (really only *N. Tazetta*) called the "[Sacred Lily](#)" or "[Joss Flower](#)," has attracted attention, and has been recommended for growing in ornamental bowls, &c., in drawing-rooms, in a compost (if it can be called such) of pebbles and clean water. The common mistake made in growing the Joss Lily in this way is that the plants do not get sufficient light in ordinary rooms, and consequently both leaves and stems are too weak to stand erect.

Other Daffodils with several flowers on a stalk are the Sweet-Scented Jonquil (*N. Jonquilla*), easily recognised by its roundish leaves and rich yellow flowers with a cup-shaped corona. There are several varieties including a double one known as "Queen Anne's Jonquil." The Rush-leaved Jonquil (*N. juncifolius*) with roundish rush-like leaves is closely related, its bright yellow blossoms being distinguished from those of the Jonquil by being fewer and having broader ovate segments.

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N. triandrus, popularly called "[Ganymede's Cup](#)," is a charming little species with 1 to 6 pure-white flowers in which the segments are bent back from the cup-shaped corona. There are several varieties, including a lovely white one (*albus*) called "[Angel's Tears](#)," shown on [Plate 5](#), fig. 20. *Concolor*, pale yellow; *calathinus*, white or sulphur-yellow; *pallidulus*, primrose-yellow; while *pulchellus* has primrose-yellow segments and a white corona.

The bulbs of *N. triandrus* and its varieties being rather small—half to three-quarters of an inch in diameter—the spots where they are planted should be marked, otherwise they are apt to get lost or destroyed. Until the stock is large they are probably safer grown in pots in cold frames.

As new varieties and hybrids are being added each year, the reader who wishes to grow novelties is advised to consult the bulb catalogues of such firms as Messrs. Barr & Sons, Covent Garden; Messrs. Ware, Feltham; Mr. Hartland, of Cork; Mr. Perry, Winchmore Hill, &c.

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NOTHOSCORDUM fragrans.—A sturdy North American plant, 1 to 2 feet high, with roundish oblong bulbs, having thick fleshy roots. It is closely related to the Alliums, as may be seen by its umbels of white starry flowers, the segments of which are keeled with lilac on the outside.

This species grows in ordinary good garden soil of a gritty nature, and is easily increased by offsets.

ORNITHOGALUM (*Star of Bethlehem*).—Although a large genus, only a few species are considered worth growing, except in botanical collections. The best known representative of the group is probably the Common Star of Bethlehem (*O. umbellatum*), which is now naturalised in copses and meadows in some parts of England, and may be utilised in the same way in large gardens with an abundance of grass-land. The clusters of pure-white starry blossoms appear in May and June, on stalks about 1 foot high, and are keeled with green behind. Very similar in appearance are the flowers of *O. arabicum*, which, however, appear in June and July, and are much larger, sometimes 2 inches across, with golden anthers, and a shining black ovary in the centre, as shown in [Plate 29](#), fig. 107. Unfortunately, this species is rather tender in the colder parts of the kingdom, and should be protected in winter. As an alternative the plants may be grown in pots in cold greenhouses, or in glasses of water in the same way as Hyacinths (see [p. 84](#).) *O. nutans*, the drooping white flowers of which are also shown on [Plate 29](#), fig. 108, is almost as hardy as *O. umbellatum*, and may be naturalised in the same way. *O. arcuatum* has pure white erect flowers in May and June on stalks 2 feet or more high. *O. pyramidale*, the white flowers of which have a green stripe behind, and are borne on stalks 1-1/2 to 2 feet high in June and July, is another species worth growing in masses in the shrubberies, or in the grass (see [Plate 19](#), fig. 74); and *O. pyrenaicum*, with pale yellow-green flowers may be given similar treatment.

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Ordinary well-drained garden soil of a more or less sandy nature will suit the Ornithogalums. They are easily increased by offsets.

PANCRATIUM.—Most of the plants in this genus require to be grown in heat and moisture under glass. Two species, however—both with clusters of white sweet-scented flowers on stout stalks 1 to 2 feet high—can be grown in the open air in the milder parts of the British Islands. They are *P. illyricum* and *P. maritimum*, both natives of Southern Europe. They have large pear-shaped bulbs with a tapering neck 9 to 12 inches long, and consequently require to be planted pretty deeply, say about a foot in September. A well-drained sandy loam and leaf-soil suits them best, and they may be increased by offsets.

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POLIANTHES tuberosa (*Tuberose*).—Although what are known as African, American, Italian, and Pearl Tuberose, are usually grown in warm greenhouses, nevertheless the plants may be grown with a fair degree of success in the open air in the milder parts of the kingdom. The thickish bulbs, about 2 inches through, may be planted out about the end of May, only just covering the tops with an inch or two of soil. The thin and narrow leaves will soon appear, and about August the pure waxy-white heavily-scented blossoms will be thrown up on stalks 2 to 3 feet high, that may require a thin stake to keep them erect. There are single and double-flowered varieties, the latter being most popular for cultivation under glass. For this purpose the bulbs may be treated as advised at [p. 46](#).

PUSCHKINIA scilloides.—A charming little plant, with ovoid bulbs about an inch through, and narrow leaves about 6 inches long. About March and April the white or very pale blue blossoms appear, and are decorated with a conspicuous deep-blue line down the centre of each segment. Warm sheltered spots in the rock-garden or flower border, and a compost of rich sandy loam and leaf-soil suit this plant best. The bulbs should be planted, 3 or 4 inches deep, in September or October (but not later), and may, if convenient, remain in the same spot for three or four seasons without being lifted. This is best done when the foliage has withered, and will give an opportunity for detaching the offsets to increase the stock.

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SCHIZOSTYLIS coccinea.—A charming South African plant, 2 to 3 feet high, with the appearance of a Gladiolus in the sword-like leaves. The brilliant crimson blossoms, each about 2 inches across, appear from September to November, and consequently often get spoiled by the weather unless protected. They are excellent for cutting and valuable so late in the season. The plants flourish in rich sandy loam, peat and leaf-soil, and are more satisfactory in the open air in the mildest parts of the kingdom. In other parts they should be planted on a sheltered south border where they can be protected in winter if necessary. Grown in pots, the plants are popular for greenhouse decoration. Increase is effected by dividing the thickish rootstocks in spring.

PLATE 28.



GLADIOLUS NANCEIANUS (103)
GLADIOLUS LEMOINEI (104)
GLADIOLUS CHILDSI (105)

SCILLA (*Squill; Bluebell*).—The Squills and Bluebells are amongst the most charming of our spring-flowering bulbous plants, and it is astonishing that they are not more extensively utilised for naturalising in the grass, with Snowdrops, Crocuses, Narcissi, Chionodoxas, &c., with which they harmonise so well. Preferring partially shaded spots, they are particularly valuable for planting in woodland walks, and beneath our native trees in parks and pleasure grounds. The hardier kinds require practically no cultivation, and will flourish in any of the places indicated or in ordinary garden soil in the rock-garden or flower border. The best time to plant is about September and October, and as the bulbs are 1-1/2 to 2 inches in diameter, they should be buried about 3 or 4 inches deep, and in hundreds and thousands if possible instead of in twos and threes.

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The best-known member of the genus is undoubtedly our Common British [Bluebell](#) or Wood Hyacinth (*S. festalis*). It is to be found in abundance in woods and copses, and from April to June sends up its tall stalks of drooping bell-shaped flowers, the colour of which varies from bluish-purple to white or pink, according to the several varieties, such as *alba*, *rosea*, and *rubra*, &c.

Another fine species is the [Spanish Bluebell](#) (*S. hispanica* or *S. campanulata*), perhaps the finest-looking Bluebell in the open air. The ordinary variety has porcelain-blue flowers on stalks a foot or more high. It is surpassed in beauty, however, by its white variety *alba*, which flowers freely and grows vigorously. There are also forms with pink or rosy flowers, such as *rosea* or *carnea*, *rubra*, &c., all of which appear in April and May.

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The species, however, that finds so much favour for autumn planting is *S. sibirica*, a charming species, with purple-coated bulbs, and bright porcelain-blue blossoms with more or less spreading segments. They appear in February and March on stalks 3 to 6 inches high, but are more numerous in the variety called *multiflora* (see [Plate 2](#), fig. 7). Owing to its early blooming, it is of course a great favourite with other early flowering plants.

Other kinds of Scilla that may be grown in the open air in the same way as those already mentioned are:—The [Star Hyacinth](#) (*S. amoena*), which requires rather warm sheltered spots. It has bright indigo blue flowers with spreading segments from March to May. *S. bifolia* grows 6 to 9 inches high, and produces its bright-blue, bell-shaped flowers in March. There are several forms of it, such as *alba*, white, *rosea*, pale rose, &c. *S. hyacinthoides*, bluish-lilac; *S. italica*, blue; *S. verna*, porcelain-blue; *S. patula*, deep blue with white edges; and *S. monophylla*, with blue or violet flowers, all appearing in April and May.

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Quite distinct in appearance from all these is *S. peruviana*, which, by the way, is not a native of Peru, but of the Mediterranean region. It has large, pear-shaped bulbs, and rosettes of leaves 6 to 12 inches long, with bristly margins. The bright blue starry blossoms appear in May and June, and are borne in broadly conical clusters, which elongate during the flowering period. There are white (*alba*) and yellow (*lutea*) varieties, the first-named of which is shown on [Plate 17](#), fig. 69.

This species may be grown in warm sheltered spots in the border or rock-garden, in dryish, well-

drained soil. The bulbs should be planted 4 to 6 inches deep, and in cold localities should be protected from severe frosts in winter.

Scillas may be increased by offsets taken from the old bulbs when the foliage has withered.

SISYRINCHIUM grandiflorum.—This is the best garden plant out of about fifty species. Like *Schizostylis coccinea*, it can scarcely be called a "bulbous" plant, as it has only short thickened rootstocks. It grows about a foot high, having striated leaves, and deep purple blossoms (as shown in [Plate 20](#), fig. 79), which, however, are white in the variety *album*. It is an excellent plant for the rock-garden, where it should be planted in bold clumps, in light sandy loam and peat. Increased by division of the rootstocks about September.

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SPARAXIS.—The plant best known under this name has been already described as *Dierama pulcherrima* at [p. 71](#). The Sparaxis proper are little known plants, the best known being (i) *grandiflora*, which grows 1 to 2 feet high, and has bell-shaped flowers of deep violet-purple in April and May. There are many colour variations of this species (including a white one), several of them having a deeper coloured blotch at the base of the petals. (ii) *Tricolor*, resembles *grandiflora* in appearance, but has rich orange-red blossoms with purple-brown blotches on the yellow base of the petals. There are also several forms of this species with white, rose, or purple flowers, all having a yellow centre with distinct blotches at the base of the petals.

These South African plants require the same treatment as *Dierama pulcherrima* or the *Ixias* (see [p. 89](#)). They like warm sheltered spots in the mildest parts of the kingdom, and when well-grown are very showy and useful for cutting.

PLATE 29.



ZEPHYRANTHES ATAMASCO (106)
ORNITHOGALUM ARABICUM (107)
ORNITHOGALUM NUTANS (108)

SPREKELIA formosissima (*Jacobæa Lily*).—A fine Mexican plant, with roundish bulbs 2 to 3 inches in diameter, and narrow strap-shaped leaves 12 to 18 inches long. In the open air the irregular bright crimson blossoms, each about 6 inches across, appear about August, and never fail to attract attention.

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Unfortunately, the *Jacobæa Lily*, of which there are a few colour variations, can scarcely be considered as perfectly hardy in the mildest parts of the British Islands. It often flowers, however, when the bulbs are planted out about the end of May or early in June, when danger from frost is practically over. The flowers often appear before the foliage, but the bulbs should not be lifted in autumn for storing until the leaves show signs of withering. New plants are secured from offsets.

STERNBERGIA.—Charming plants, with roundish bulbs about 2 inches in diameter, and strap-shaped leaves, which are in their prime sometimes with the blossoms, as in *S. lutea*, and sometimes long before the latter appear, as in *S. macrantha*. The bulbs should be planted in spring, 5 or 6 inches deep, in rich and well-drained sandy loam and leaf-soil. When in bold clumps the flowers present a charming sight, either in the grass, rock-garden, flower border, or margins of thin shrubberies. All kinds have beautiful crocus-like yellow flowers as shown in [Plate 33](#). *S. lutea* (fig. 119), variously known as the "Winter Daffodil" and "Yellow Star Flower," is considered to be the "[Lily of the Field](#)" mentioned in the Scriptures. It blooms in September and October, the yellow flowers nestling amongst the leaves. There are several forms of it, differing chiefly in the size of the blossoms and width of the leaves. *S. macrantha* ([fig. 120](#)) is a still finer species, with flowers much larger than those of *S. lutea*, with which they appear in autumn. Other species are *colchiciflora*, the bulbs of which are only about an inch in diameter, and the pale-yellow sweet-scented flowers appear in autumn. *S. Fischeriana* also has bright golden-yellow blossoms, but differs from its relatives in producing them during the spring months—February onwards—instead of in the autumn.

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TECOPHILEA cyanocrocus.—This distinct and charming Chilean plant, popularly known as the "Chilian Crocus," has fibrous-coated corms and narrow wavy leaves. The beautiful Violet-scented, funnel-shaped flowers of a brilliant blue, with a white centre, appear in March and April, borne in loose trusses. (See [Plate 12](#), fig. 50.) The variety *Leichtlini* differs in having deeper blue flowers than the type, and without the white centre.

In the milder parts of the kingdom the Chilean Crocus may be grown in the open air in warm sheltered spots, such as on a south border at the base of a wall or fence. Rich sandy loam and leaf-soil is a good compost into which the corms may be planted, 6 to 9 inches deep, about September. In winter it may be necessary to give protection with litter, bracken, &c., in the event of severe frosts or continuous cold rains. The plants are most readily increased by offsets.

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TIGRIDIA Pavonia (*Peacock Tiger Flower*).—There are several species of Tiger Flowers, but the one here mentioned, and its several varieties, are the most useful for the out-door garden. They have bulbs 1-1/2 to 2 inches in diameter, and plaited Gladiolus-like leaves. The blossoms, however, one of which is shown on [Plate 30](#), fig. 110, are of exceptional beauty and brilliance amongst bulbous plants, and although they do not last a long time individually, they nevertheless follow each other so rapidly that the plants are scarcely ever without flowers during the summer months. The coloured picture will convey a far better idea as to the colouring and blotching of the flowers than any printed description. There are other varieties of *T. Pavonia* besides the one shown on the Plate. Perhaps the best are *grandiflora*, very large and brilliant; *conchiflora*, yellow blotched with purple; *Wheeleri*, deep red; and *alba*, pure white spotted with purple.

The Tiger Flowers are natives of Mexico, and therefore cannot be grown successfully in the open air in all parts of the kingdom. In the mildest parts, however, the bulbs may be left in the ground during the winter months, care being taken to protect them with leaves, litter, &c., during severe weather, or from heavy cold rains. In less favoured spots, where they nevertheless blossom out of doors in summer, the bulbs may be taken up about the end of October when the foliage has withered, and they may then be stored in frost-proof places in sand until the following April or May. Whenever the bulbs are lifted the offsets should be detached to increase the stock. The warmest, most sheltered, and sunniest spot in the garden is obviously the best place for Tigrdias. In addition to this the soil should be a well-drained sandy loam enriched with old cow-manure and leaf-soil. During active growth, and especially in the hot dry seasons, it is necessary to keep the plants well-supplied with water, otherwise the results are likely to be the reverse of satisfactory.

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TRITONIA.—This genus contains a handsome group of plants with fibrous-coated corms, like those of a Gladiolus, but much smaller. The plants formerly known as Montbretia are now also included in this genus, but the corms in some cases (e.g., *M. crocosmiæflora*) have slender creeping rhizomes, from which new corms are developed by the end of the season. The leaves are more or less like those of a Gladiolus, but somewhat narrower, and often curved, while the showy blossoms are borne in slender graceful spikes, that are very useful for cutting.

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Only a few species and their numerous varieties are cultivated in the open air, being either massed in bold clumps in the ordinary flower border or rockery, or as beds by themselves in the grass. Being natives of South Africa, warm, sheltered, and sunny situations, and a light loamy soil, enriched with leaf-soil or well-decayed manure, naturally suit them best. Although perfectly hardy in all except the bleakest parts of the kingdom, the kinds mentioned below are best taken up and replanted each year or two in the spring time. It is not, however, essential to lift the corms in the autumn and store them in sand except in very cold parts where protection would be troublesome perhaps. A glance at the drawings on [p. 26](#) will show the reader that offsets are freely produced, and in this way the kinds are most easily propagated.

The kinds most suitable for open air culture are: *T. crocata* (formerly known under the names of *Ixia* and *Gladiolus*) grows about 2 feet or more high, having broadly sword-shaped and curved leaves, and spikes of yellow or orange-coloured blossoms in June and July. There is a good deal of

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variation in the colour, some varieties being much paler or darker than others, and spotted with red, yellow, or brown.

T. crocosmiæflora, better known as *Montbretia*, is a graceful and popular garden plant, really a hybrid between *Crocospma aurea* (see [p. 67](#)) and *T. Pottsi*. It grows 2 to 2-1/2 feet high, and resembles a small *Gladiolus* in foliage. The brilliant orange-red blossoms appear in great profusion from July onwards to October or November, and are always attractive when grown in bold masses. There are numerous varieties of it—one, *Etoile de Feu*—being shown on [Plate 27](#), fig. 102; others being *Germania*, *Globe d'or*, &c.

T. Pottsi, also better known perhaps as a *Montbretia*, grows 3 to 4 feet high, having narrow tapering sword-like leaves, and bright yellow funnel-shaped flowers suffused with red. They are borne in gracefully nodding spikes from August onwards, and exhibit great variation in colour and markings according to the many varieties that are now in commerce. The plant known as *Tritonia aurea* is described in this work as *Crocospma* (see [p. 67](#)).

PLATE 30.



**CRINUM MOOREI (109) TIGRIDIA
LILACEA (110)**

TULBAGHIA violacea.—A pretty little South African plant with narrow leaves and slender spikes of violet-purple flowers, as shown in [Plate 32](#), fig. 113. This species seems to be hardy in the Thames Valley and milder parts, but must be grown in large quantities to produce anything like an effect. It grows well in ordinary well-drained garden soil.

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TULIPA (Tulip).—Although the days of the ridiculous Tulip craze of the seventeenth century have happily passed away, the love of Tulips has increased by leaps and bounds, and thousands are now cultivated where formerly dozens or hundreds were tolerated. Whether grown in lines or circles in formal beds, in irregular clumps in the flower border or rock-garden, or naturalised on grassy banks, Tulips constitute one of the most pleasing and brilliant features in the garden during the spring and early summer months. Indeed, one can hardly imagine what the garden would be like at this period of the year without the beauteous forms and glorious tints of the Tulip. The well-known brown-coated bulbs, 1 to 2 inches in diameter, are now so cheap that they come within the reach of the most modest purse, and there is no reason why Tulips should not be found in every cottage garden in the kingdom.

The culture of the Tulip is quite as easy as that of the common Daffodil. There is one important difference, however, between the Tulip and the Daffodil. While the latter likes partial shade, the Tulip enjoys plenty of sunshine, and shelter from bleak winds. Any good garden soil that has been deeply dug, and enriched with well-decayed manure some time previous to planting will produce fine blossoms. In the open air the bulbs should be planted about 4 inches deep, and not more than 6, even in bleak localities, as a safeguard against frost. The best time for planting is from the beginning of September to the end of October, and care should be taken when planting formal beds to see that the lines are perfectly straight, and the bulbs buried at a similar depth throughout. To secure the latter result a blunt dibber may be used, marked at the required depth

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with a cross-piece nailed on, or a piece of hoop iron that can be slid up or down to any particular depth. In this way, and by planting each bed with the same variety, uniformity in height, colour, and period of flowering will be secured. In vacant spaces in the flower border and rock-garden, such formality would be out of place, and in such positions mixed Tulips produce a more natural effect.

Although effective in themselves, the beauty of Tulips is greatly enhanced by planting them in beds that are already carefully arranged with such plants as Wallflowers, Polyanthus, Primroses, Pansies, or Violas, Dwarf Saxifrages, Double White Arabis, (*A. albida flore pleno*), Yellow Alyssum (*A. saxatile*), Forget-me-Nots, Aubrietias, and such like plants that blossom about the same period and make an effective screen to hide the ground between the blue-green leaves of the Tulips. In arranging combinations, it is as well to have the Tulips and carpet plants arranged so that the colour of the one shall be quite distinct and in lively contrast with that of the others.

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Thus White Tulips may have Yellow Arabis, Primroses, Polyanthus, &c., beneath them. On the other hand, red Tulips should not be mixed with red Wallflowers, although they look remarkably effective with yellow ones. And so on, more or less in accordance with the principles laid down at [p. 38](#).

For the benefit of those who take up their Tulip bulbs each year (when the flowers have withered being usually the earliest period for this operation) it may be as well to mention, that the bulb that is lifted about midsummer, is not the same as that planted in autumn. Indeed it is quite a new bulb altogether, and, as a rule, contains all the elements necessary for the production of leaves and blossoms the following season. The Tulip bulb planted in autumn is used up in the formation of leaves and flowers, that are produced in early summer. Whence then comes the bulb that is taken out of the soil when the flowering period is over? It has been made out of the raw material that has been assimilated by the leaves under the influence of sunlight. Very often there is more than sufficient food for the formation of a large flowering bulb, in which case the surplus food is converted into offsets at the base of the large bulb. These offsets, if planted and grown on for two or three seasons in specially prepared beds of light soil, will develop into flowering bulbs. They should, therefore, never be thrown away as useless.

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Seedling Tulips.—Besides offsets (some of which drop several inches below the parent bulb, and are called "droppers.") Tulips may also be raised from seeds if one has the requisite patience and convenience. When seeds are required, the old plants must of course be left in the soil until the seed capsules have thoroughly ripened. The seeds should be sown very sparsely in drills, in carefully-prepared beds of light soil, and may be left undisturbed for about five or seven years, until the first flowers appear. Of course weeds must be kept down regularly, and to facilitate this operation, the seed beds should not be more than 4 or 5 feet wide, and the drills quite a foot apart.

The first flowers of a seedling Tulip are called "Breeders" or "Mother Tulips" and are of one colour throughout, although the seeds may have been saved from beautifully pencilled or flaked blossoms. When a "breeder" Tulip develops markings of a different colour, it is said to "break" or "rectify." Such rectified flowers are then divided into two groups, (*a*) those with a pure white centre, base, or ground, and (*b*) those with a pure yellow centre.

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The white centred flowers (*a*) are again divided into (i) *Roses*, the flowers of which are various shades of pink, rose, scarlet, crimson, cerise, &c., and (ii) *Bybloemens*, the flowers of which display various shades of lilac, lavender, violet, purple, brown, purple-black, &c.

The yellow-centred flowers (*b*) are called *Bizarres*, with various shades of orange, scarlet, crimson, purple-black, brown, &c. These various classes of "rectified" Tulips have the petals either "feathered" or "flamed." A "feathered" Tulip has the petals beautifully pencilled and feathered round the edges only; while a "flamed" Tulip differs in having bright streaks, bands, or flames of a distinct colour shooting up the centre of each petal from the base, and forking out towards the pencilled and feathered margins.

Only specialists in what are called the "florist's Tulip," however, take a keen delight in drawing these distinctions.

There are some hundreds of varieties of Tulips enumerated in nurserymen's catalogues, but it is unnecessary to grow many of them to make an effective display. The following—arranged according to the predominating colour—may be regarded as a good selection for planting in the open ground in autumn:—

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Single Varieties for Planting Out.—*Red, Scarlet, Crimson, and Pink.*—Artus, Bacchus, Belle Alliance, Couleur de Cardinal, Crimson King, Duc Van Thol, Pottebakker, Proserpine, Rose Luisante, Rose Gris de Lin. *Orange, Brownish, and Terra Cotta.*—Cardinal's Hat, Duc Van Thol, Leonardo da Vinci, Prince of Austria, and Thomas Moore. *Yellow.*—Bouton d'Or ([Plate 9](#), fig. 37), Canary Bird, Chrysolora, Gold Finch, Golden Crown, Mon Trésor, Pottebakker, and Yellow Prince. *White or Blush.*—Albion (or White Hawk), Jacht van Delft, White Swan, Grand Duchess, Joost von Vondel, La Reine, Immaculée, and Pottebakker. *Purple and Violet.*—Molière, Purple Crown, President Lincoln. *Red, Pink, Rose, or Violet, with White.*—Bride of Haarlem, Cottage Maid, Couleur ponceau, Standard Royal, Wapen van Leiden, Picotee ([Plate 9](#), fig. 36). *Red and Yellow combined.*—Brutus, Duchesse de Parma, Keizerskroon.

Double flowered Tulips.—*Scarlet and Crimson combined.*—Imperator Rubrorum, Rex Rubrorum, Rubra maxima. *Pink and Rose.*—Couronne des Roses, Murillo, Raphael, Rose d'Amour, Salvator Rosa. *White.*—Alba maxima, Grand Vainqueur, La Candeur, Rose blanche. *Red and Yellow combined.*—Duc Van Thol, Gloria Solis, Tournesol, Princess Alexandra. *Orange or Yellow.*—Tournesol, Yellow Rose, Miroir.

Parrot or Dragon Tulips.—These remarkable looking flowers are supposed to be descended from the curious green and yellow-striped *T. viridiflora*. The petals are cut and jagged into all kinds of peculiar shapes, while the colours are chiefly a mixture of reds, crimsons, greens, and yellows.

PLATE 31.



BELLADONNA LILY (111) DIERAMA PULCHERRIMA (112)

Darwin Tulips.—These are a very popular class of self-coloured Tulips derived from *T. Gesneriana*. They are in fact "breeder" Tulips referred to on p. 134. The individual blossoms are large and cup-shaped, and are borne on stalks 1-1/2 to 2 feet high. There are numerous named varieties (for which a catalogue should be consulted), but a mixed collection will give a grand display, the colours being shades of apricot, yellow, carmine, rose, pink, crimson, maroon, and white.

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With the [Darwin Tulips](#) may be associated what are known as the "Cottage" or "May Flowering" Tulips—vigorous kinds with tall stems and fine large flowers, that are admirably adapted for the decoration of the garden. For vases, bowls, &c., they are also excellent.

Natural Species or Wild Tulips.—Apart from the almost innumerable florists' varieties of Tulips, keen interest has been taken of late years in the cultivation of the natural species of Tulip which are found growing wild in various parts of South Europe, Asia Minor, Turkestan, &c. There are quite a large number of these natural species now to be had, but the cream of them may be said to be *Gesneriana*, *Greigi*, *macropsila*, and *Oculus Solis*, all with scarlet or crimson blossoms and black blotches at the base. Other useful kinds for bedding out or for naturalising with Daffodils, Bluebells, &c., are *Eichleri*, *fulgens*, *Hageri*, *macrostyla*, *maculata*, *Didieri*, *Ostrowskyana*, *planifolia*, *lurida*, *undulatifolia*, *suaveolens*, all with bright red or deep crimson blossoms except *suaveolens* which is bordered with yellow. Yellow flowered kinds are *australis* ([Plate 10](#), fig. 40), *Batalini*, *flava*, *Billietiana*, *galatica*, *neglecta*, *retroflexa*, *sylvestris*, *strangulata* (speckled and streaked with red), *viridiflora* (with broad green band down the centre), *Sprengeri* (petals tipped with red), and *Kolpakowskyana*.

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Apart from their value in the garden, Tulips are also popular as cut flowers. As most of them produce their blossoms on sturdy stems 1-1/2 to 2-1/2 feet high, they are easily picked, and when bunched in vases with foliage, or grasses, or even by themselves, they add a luxurious appearance to any apartment.

The great mistake many make in picking Tulip flowers is that they gather them often in the middle of the day when the petals are wide open, especially if there is strong sunshine. In the

expanded state the blossoms do not last very long. They should therefore be picked either early in the morning or late in the evening, when the petals are closed in over the stamens and ovary in the centre. There is no need to actually *cut* the stems. By holding them close to the ground and giving a staccato pull upwards, they come away easily from the bulb, and possess the advantage of being a few inches longer than those cut with a knife or scissors.

WATSONIA.—Although popularly called "Bugle Lilies" the Watsonias really belong to the Iris family. They have fibrous-coated corms, stiffish, ribbed, sword-like leaves, and more or less funnel-shaped flowers. They are indigenous to South Africa, and may be grown in the open air under much the same conditions as *Ixias*, viz., warm, sheltered spots, and in light sandy soil. In the mildest parts of the kingdom the corms may be left in the ground during the winter, if necessary, but they should be protected in severe weather with litter, &c. In less favoured spots, it is safer to lift the corms in autumn when the leaves have withered, and store them in dry soil or sand until the spring.

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The varieties depicted on [Plate 27](#), figs. 99 to 101, show some of the most graceful kinds. *W. Meriana*, fig. 99 (also known as *Antholyza*) has several varieties including a scarlet one (*coccinea*), a white one (fig. 100), and a pink and white one (*rosea-alba*), which bear their blossoms during the summer months on stems 2 to 3 feet high. *W. rosea* resembles a *Gladiolus* in appearance, and indeed was once known as *G. pyramidatus*. It has several forms, including *angusta*, shown in the plate (fig. 101). Perhaps the most charming variety of all, however, is the beautiful *Ardernei*, the large pure white blossoms of which always attract attention owing to their purity and delicacy ([Plate 26](#), fig. 96).

As a pot plant for conservatory decoration, *W. Ardernei* is very valuable, owing to its graceful appearance. In the open air it requires warm, sheltered, and sunny positions, and a rich sandy soil.

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ZEPHYRANTHES (*Zephyr Flower*).—Beautiful plants with small brown-coated bulbs about an inch in diameter, from which spring narrow leaves and rather large funnel-shaped flowers, only one, however, on each stem. There are only a few species that may be grown in the open air in the mildest parts of the kingdom. The soil cannot be too well drained, and should consist of a rich sandy loam, while the position should be the warmest and most sheltered in the garden. The kinds most likely to succeed are *Atamasco*, a native of the damp woods and fields of Virginia. The flowers shown on [Plate 29](#), fig. 106, are at first pure white, but become tinted with pink or purple. *Z. candida*, the "Swamp Lily" of La Plata, has pure white blossoms, as shown on [Plate 32](#), fig. 114, as have also *Treatiæ* and *tubispatha*, while *carinata* and *rosea* both have rose-coloured flowers. The average height of these kinds is about a foot, and they may be increased from offsets or from seeds. At one time the Zephyr Flowers were grown in warm greenhouses, but experience has proved that they are much hardier than was at first supposed.

PLATE 32.



TULBAGHIA VIOLACEA (113)
ZEPHYRANTHES CANDIDA (114)
CRINUM POWELLI ALBUM (115)

ENEMIES OF BULBOUS PLANTS.

Bulbous plants are subject to the attacks of various insect and fungoid pests in the same way as other plants are, and steps should be taken to free the plants from them whenever they appear, or to prevent them appearing at all. [Pg 141]

It is easier to carry out the latter recommendation when insect enemies only are to be dreaded, but it is quite another matter with fungoid diseases, the presence of which is only revealed when they have reached the "fruiting" or spore stage, and have already done a certain amount of mischief.

Wireworms, Grubs, &c.—When a soil is infested with any of these pests, the gardener may be almost sure to find his choicest roots or bulbs eaten by them. He should, therefore, take the precaution to have the ground turned up, if possible, some time before planting, so that these pests may be brought to the surface and exposed to the keen eyes of the "birds in the air" who are always on the watch for any choice morsels that are likely to improve their voices.

It would not be safe, however, to trust altogether to the natural enemies of these pests who are usually endowed with keen powers for evading their attacks. It may be necessary, therefore, to lay traps of pieces of potato, carrot, parsnip, or any fleshy and enticing material in their haunts, and examine them regularly. A piece of stick thrust into these substances will make a convenient handle for lifting them up for examination. The best time of course to catch the enemy is when he is dining off his piece of potato, parsnip, or carrot. He and his friends should then be led forth for execution beneath the weight of the foot, or into a bucket of boiling water, or in any other way that the ingenious reader may devise. The main thing, however, to bear in mind is that the enemy must be *killed* without mercy or remorse. And no matter how ruthlessly he is persecuted, it will be found each season that there are still some of his family left to carry on a guerilla warfare against the gardener and his plants. So that one must be really always on the watch for attack, and, like a wise general, be ready to meet it, or spoil it altogether. [Pg 142]

Besides using traps of potatoes, carrots, &c., *nitrate of soda* and *kainit* have been found very useful for ridding the soil of these pests. About 2lbs. of nitrate of soda or kainit to a square rod (30-1/4 square yards) has been found an ample dressing. It should be distributed evenly over the surface of the soil, when the latter is in a moist—but not sodden—condition.

Lime and Soot.—Slugs and snails are great marauders among the young growths of bulbous and other plants, and may be kept in check by the use of nitrate of soda, and kainit, as well as by birds. These remedies may be supplemented, or even supplanted, by the use of lime and soot. These substances are always easy to obtain, and will be found of great use not only in keeping the garden free from insect pests, but also because of their manurial value. [Pg 143]

When lime is used for checking the attacks of slugs or snails it should be freshly slaked, that is, a little caustic or quick-lime should be broken down into a fine white powdery mass by having a little water poured over it. When the heat has subsided the powdered lime may be sprinkled around and between the crowns of the plants that are being attacked by slugs. Should it come in contact with the slimy bodies of these it will soon kill them. Soot that has been exposed to the air for several weeks will be found a good preventive also against these pests, and it has the advantage of not being so conspicuous amongst the plants as lime. Fresh soot from the chimney should on no account be strewn amongst the young crowns or growths of plants, as the poisonous matters in it may kill them as well as the slugs.

Slaked lime and seasoned soot may be mixed together, and then strewn over the surface of the soil. Even common *salt* is a good slug destroyer, and may be applied in either a liquid or solid form. Lime-water is also an excellent cleanser, and may be given to the soil freely without injury to the plants. Where large numbers of Daffodils are grown one must keep a watch for the grub of the Narcissus fly (*Merodon equestris* or *Narcissi*), an insect resembling a small and slender bumble-bee in appearance. It lays its eggs in the early summer months in the Narcissi, and the grubs from these bore their way into the fleshy part of the bulb, damaging the growths and flower stems for next season. When the bulbs are being lifted or planted, any that are soft to the touch are very likely affected, and should be examined for the pest. Any badly affected should be burned. Those not so badly injured may be steeped in water in July or August, for about a week, to drown the maggots which at this period have caused but little mischief. When the perfect Merodon insects are on the wing from about the middle of May to the middle of July they may be enticed to drown themselves in saucers containing strong solutions of sugar or treacle, placed amongst the plants. [Pg 144]

Although most birds in the garden may be looked on with a friendly eye, one must make an exception in the case of *Passer domesticus*,—otherwise known as the common *sparrow*. He will tear your Crocuses—especially the yellow ones—to tatters out of sheer mischief. If he would only eat the petals or make a nest of them there would be some excuse; but no, he simply tears them to pieces and flings them, so to speak, in your face. Mrs. Sparrow is no doubt just as bad, [Pg 145]

and therefore should have her nest and the eggs therein confiscated and destroyed on every possible occasion. A few strands of *black* cotton thread stretched over the Crocuses will be found to yield a certain amount of protection against attack.

Fungoid Diseases.—Of the fungoid diseases affecting bulbous plants happily there are few; and even these are not troublesome to any alarming extent in the open air.

Snowdrops are sometimes attacked with a kind of mildew known scientifically as *Botrytis galanthina*. The fungus attacks bulbs, leaves, and flower-stems one after the other, and effectually stops the plants from flowering. As soon as this disease is seen on the plants, the affected portions should be carefully picked off and burned. Once the disease reaches the black spot-like stage, there is little hope for the plants so that they had better be burned straight away.

Colchicums, Crocuses, Tulips, Hyacinths, Daffodils, Gladioli, and others are affected from time to time with one fungoid disease or another, probably because the soil in which they grow has not been particularly well-prepared, and is full of some organic matter that can only be disposed of by the addition of freshly-slaked lime, and deep digging at the earliest opportunity. When any of the plants referred to are badly attacked with any fungoid disease, the simplest and best remedy is to burn them—and thus kill the spores and prevent them spreading. It will be cheaper to buy new bulbs the following season, and to grow them in *another* portion of the garden, rather than try to reclaim the old ones whose doom in any case is only a matter of time.

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Perhaps one of the worst [diseases](#) affecting bulbous plants is that which for some years past has ravaged plants of the [Madonna Lily](#) (*Lilium candidum*). The bulbs seem to be fairly free from the disease, but the leaves and stems become so badly affected in some parts of the country that they cannot perform their functions, with the result that no blossoms are borne, or only misshapen ones. There is at present, I believe, no effectual remedy against the Lily disease, and once it appears in a garden, the culture of the Madonna Lily is doomed from that moment. As a preventive, the plants might be sprayed several times during the season, from January onwards, with a solution made by dissolving one ounce of [liver of sulphur](#) in a gallon of hot water, and adding 2-1/2 gallons more of water. This should be applied with a fine-sprayed syringe, and is a good preventive against many kinds of fungoid attacks. If used near white woodwork and comes in contact with it, the paint will be discoloured. Of late years, the bulbs that are imported in such large numbers from Japan have been more or less afflicted with a fungoid disease that appears to be very difficult to check. This disease may be the result of over cultivation, or too intense cultivation to secure large quantities of plants in a comparatively short time. The Bermuda Lily disease is probably the result of similar efforts to get rich too quickly. So that one natural remedy against the disease would be to grow the bulbs more naturally and allow them to ripen fully before disturbing them. However, as people in Europe must have Lilies, they take the best that can be provided. On arrival of the bulbs they should be carefully examined, and any diseased or decayed portions taken off and burned. As a preventive against any spores germinating, the bulbs may be well rolled in freshly slaked lime, and allowed to dry in a cool airy place for a day or two before planting or potting. Mr. Masee, in his book on "Plant Diseases," recommends submerging the bulbs in a 1 per cent. solution of [salicylic acid](#) for 20 minutes, and after thoroughly drying them, to kill the spores of the fungus.

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PLATE 33.



**CROCUS MEDIUS (117) COLCHICUM
SPECIOSUM (118) STERNBERGIA
LUTEA (119) STERNBERGIA
MACRANTHA (120) CROCUS
OCHROLEUCUS (121) CROCUS
SPECIOSUS (122)**

A peculiar fungoid disease, known as "[basal rot](#)," attacks Daffodils and Narcissi in soil that is cold and heavy or badly drained. It causes the leaves to become brown at the tips, and the bulbs to become rootless and swollen, while the tunics are soft and rotten at the base. The best way to check this disease is to have the bulbs lifted, and if they can only be grown in the same soil again, this should be deeply dug to let the water pass away from it, and some road grit and leaf-soil should be incorporated with it before re-planting. Some freshly slaked quicklime may be afterwards pricked into the top with the fork.

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MANURING BULBOUS PLANTS.

When bulbous plants, like Tulips, Hyacinths, Daffodils, &c., are planted and lifted annually, they can hardly be said to require any special manuring during the period of their growth, as the soil in which they are planted is, or ought to be, usually well prepared and manured in advance in the way recommended at [p. 16](#). But even when such bulbs are planted and lifted every year, they might be considerably improved by the application of a little artificial manure at the right time. For instance, in December or January a little [basic slag](#) (10 to 20 pounds to about 30 square yards) would supply phosphatic food to roots later on in the season when it would be useful for the development of the blossoms.

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A little [superphosphate of lime](#) at the rate of four to eight pounds to 30 square yards, would also be useful, applied about March or April. [Kainit](#) is a cheap potash manure, and may be applied at the same time as the basic slag at the rate of one or two pounds to the same area—either by itself or mixed with the slag.

It contains a good deal of common salt, and should therefore be applied *before* root-action commences, otherwise it may prove injurious to the new roots.

The necessity for manuring becomes more important in the case of bulbous plants that are to be left in the same soil for several years. Like other plants, of course, they rob the soil of a certain amount of food, and unless this is returned in some way the soil gradually becomes poorer and the plants less vigorous. One of the best ways, perhaps, to supply fresh food for the roots of the bulbous plants is to give the soil a good top-dressing or mulching of well-decayed manure in the early autumn months. This will gradually decay during the ensuing winter and spring months and yield up its food. During this period it will also prevent the heat, that was taken into the soil in the summer, from escaping too rapidly by radiation. It would be more harmful than useful to apply a mulching of manure in the depth of winter or early spring, as it would prevent the sun's rays from warming the roots.

Where Lilies, Tulips, Daffodils, Crocuses, Snowdrops, and many other kinds of bulbous plants are naturalised in the grass, in flower borders, or amongst trees and shrubs, a good dressing of well-decomposed manure in the early autumn will prove highly beneficial each year. The basic slag,

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kainit, and superphosphate may be also applied at the seasons mentioned, if considered desirable.

Transcribers Note

1. Preface Hynenocalis changed to Hymenocalis
2. Page 50 End of first paragraph word added
"umbels form on the top of the that spring out of the bulb" changed to
"umbels form on the top of the *shoot* that spring out of the bulb"
3. Page 56 "three or fours seasons" changed to "three or four seasons"
4. Page 57 "(also known a *Calliprora lutea*)" changed to "(also known as *Calliprora lutea*)"
5. Page 57 "rose-red to to pinkish-purple;" changed to "rose-red to pinkish-purple;"
6. Page 110 "when the leaves have begun to turn yellow, Seeds may" changed to "when the leaves have begun to turn yellow. Seeds may"
7. Page 134 "a large flowering bulbs," change to "a large flowering bulb,"
8. Page 75 Closing bracket added "(finely figured in "FLORA AND SYLVA")"
9. Throughout ligature [oe] changed to oe
10. Page 175 Madame de Graaf changed to Madame de Graaff
11. Plate 25 TERMIFOLIUM changed to TENUIFOLIUM to match List of Plates and Text.

*** END OF THE PROJECT GUTENBERG EBOOK BEAUTIFUL BULBOUS PLANTS FOR THE OPEN AIR ***

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