

The Journal
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Rock Garden Club

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of
The Scottish
Rock Garden Club

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KENNETH CHARLES CORSAR

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TULIPA KAUFMANNIANA

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Editor's Notes.

THE resuscitation of the Club after the dormancy of the war years has been moderately successful only. Many of our old members have rejoined, but an almost equal number have dropped out, and while a few new recruits have come forward, the total membership now stands much below the 1939 figure. This state of affairs places the Club in a serious position. Without an adequate income its activities must be curtailed, and the income of the Club is derived solely from annual subscriptions. The well-known fact that all costs have risen steeply during the past seven years places a heavy burden on our resources, and if we are to continue along the pre-war lines either the present membership or the present subscription rate will have to be doubled; for many reasons we would like to see the former—we would be sorry if the latter had to be resorted to. Nevertheless, the position in which we now find ourselves is as stated. The expenses of producing the "Journal" have soared, and may rise even further; the cost of hiring halls for our shows has increased; the printing of circulars and the postal rates for sending them out have also gone up. Now, we must have our Shows, and a publication is an essential to any Society, and it is always necessary to send out notices to members from time to time: how is all this to be financed? The answer to this question would seem to lie with our members; either they must persuade their gardening friends to join us or else they must be prepared to pay an annual subscription of something like ten shillings if they are to secure the looked-for benefits of membership.

But the future of the Scottish Rock Garden Club does not depend entirely on the size of its income—the co-operation of its members in every sphere of its activities is also necessary. Each member who has Alpine plants to exhibit should bring them forward at one or other of our annual shows, at which there are

classes for novices as well as for the more experienced growers. Further, members should contribute notes and articles to our own "Journal". The interchange of visits between members to see each others rock gardens and Alpine plants should become more general when means of travel are easier ; regional discussion groups might then become a regular feature of our activities. One further activity which might be developed is an exchange organisation, through which members might increase the range of their collections of Alpines by barter amongst themselves. Such a scheme would obviously require some little time and effort to work up, but it has distinct possibilities, and the whole matter is now under consideration.

In 1946 Shows were again held in Edinburgh and Glasgow. Conditions prevailing made it inevitable that these should be on rather a restricted scale, but both meetings were none the less of considerable interest, and to them many good plants were brought forward both by amateur and trade growers. It is worthy of permanent record that the winners of the George Forrest Memorial Medal at Edinburgh, Major and Mrs Walmsley, now hold the unique distinction of having secured the Farrer Memorial Medal in London as well in the same year. Their lovely plant of *Phyllodoce nipponica* was much admired both in Scotland and England.

I would again express my thanks to those who have contributed notes and articles to this number of the Journal, and to those who have permitted their photographs to be used in its illustration ; I am grateful also to those who have helped me with the correction of proofs. I think that a special word of thanks is due to our Dutch member who in spite of extreme pressure of work in his own country, has found the time to compile a valuable paper on bulbous plants.

Good Alpines that behave well

By HENRY TOD, PH.D., F.R.S.E.

IN the years that have elapsed since our Club was closed down "for the duration" I imagine that all of us have found much less time for cossetting our more delicate treasures in the rock garden and have come to realise that there are certain plants which are really fine and which do not require constant supervision. Please do not think that I am decrying the culture of those rather more tricky treasures that we all cherish; far from doing so I have some still which require a lot of care though many have since succumbed to a move of garden in the interval. What I want to discuss is rather different, namely those plants which will, in suitable environment, go on from year to year giving their display without day to day care. This will, I think, be important, for it seems more than likely that for a number of years to come we will all of us have to spend a lot of time on food production or else go without. The plants that I will mention will be all plants that can keep their places in competition with a certain amount of weeds and without much individual attention, and which, moreover, can be raised from seed.

This question of raising from seed is a most important one in my view. The use of the John Innes Sterilized composts with, if necessary Cheshunt compound as well, has robbed propagation from seed of much of its hazards, and, while one plant may cost five shillings, the same money invested in seed may give a couple of dozen plants each of two different kinds. Of course you have to wait a year or two for the flourish, but a gardener surely has patience! In addition, one's own seedlings always seem to have a better constitution, probably because they are raised and grown in the same environment. As an example one may take *Gentiana verna*; this little beauty is, as many of us know to our cost, rather temperamental

and liable to vanish for no very obvious cause. Some years ago I got a plant of it and, by following Clarence Elliott's instructions carefully as given in his book, managed to get it well established and flowering freely. It set seed and this seed I sowed. The resulting seedlings though tiny were very robust and they, when planted out, were definitely less tricky than their parent.

In my experience Gentians come well from seed ; I have raised *G. G. verna*, *acaulis*, *decumbens*, *saxosa* and a species collected by Yu which is probably a form of *G. crassicaulis*. All these germinated like Cress and are good doers though *G. verna* is not so easy to keep and *G. saxosa* is definitely not robust. *Gentiana saxosa*, with its bronze foliage and white trumpets, is such a lovely little plant however, that one can class it as a really desirable plant for the rock garden. The *decumbens* group are not spectacular with their deep blue trumpets in clusters on the end of long stems which lie in a circle around the central tuft of leaves, but they are very tough and mine have survived complete burial in the middle of foot-deep groundsel and flowered well on exposure to the light once more !

Another family that do well from seed are the Dracocephalums. This is a family of very diverse habit, from neat little shrubs to tufty, purely herbaceous plants. All those that I have grown are blue-flowered, though there are some yellow ones. Many of them are aromatic in leaf and flower. The finest of all is *D. grandiflorum*, a gem of a plant with a tufted habit forming a dense mass of almost circular aromatic leaves above which rise the flower spikes with their brilliant blue snapdragon-like flowers. Four of these plants grown together on my rock garden measured about a foot to eighteen inches across by six inches high, and carried over a hundred flower spikes this summer. As the flowers wither, the persistent calyces turn red and then pale brown so that one has the blue flower-heads, the red calyces and the pale brown ones as a multicolored halo above the leaves which, as they wither, also take on reddish hues. *D. calo-*

phyllum is a representative of a rather different type which includes *D. Isabellae* and *D. Ruyschiana*, where the habit is shrubby, from six inches to a foot high, the leaves being deeply cut and very handsome. All the *Dracocephalums* like a sunny exposure with a certain amount of moisture about their roots in an ordinary loam. *D. grandiflorum* requires rather more moisture about it than the others do, as it would not grow at all well for me at Fairmilehead where the site was very arid and the exposure very extreme. Its behaviour in my present garden was described above.

A totally different sort of plant is *Lactuca macrorhiza* a wild Lettuce from Tibet. It has a rather floppy rosette of dark green leaves, a little like an untidy dandelion, but it throws up wiry flower-stems which open their buds into sky-blue dandelion-like flowers. These start about mid-summer and only stop when the hard frosts come in the late autumn. This plant is a scree-dweller in its native haunts and has developed the most gigantic roots imaginable as the specific name implies. They form great knotted masses which take a totally immovable grip wherever they are growing so that this is not a plant to "try" in a number of places as some gardeners do. It is seen to its best advantage in a hard barren scree, where the leaves do not grow in such profusion as they do in a rich soil, and where the flourish is finer. The one thing to watch is slugs, which will keep this plant mowed flat to the crown and eventually kill it if the plant is not protected at the start. If, however, the plant can be got into leaf each spring, at that stage the slugs ignore it and it will go on from strength to strength each year. It seems to be the young growth that is absolutely irresistible to slugs.

Another favourite diet of slugs is the Iris until the plants have managed to start growing strongly. They, too, can be reared easily from seed, and there are a number of really lovely ones suitable for our purpose. The well known and loved *I. pumila* is the automatic choice of the rock-gardener, and there are a number of colour forms, with the blue varying in shade, and

occasionally sporting into yellow. Some of these yellows are very poor, weak, washy colours but there are some really good ones, such as "Orange Queen," and the yellow sometimes listed in catalogues as "Reichenbachiana." There are *Iris Reichenbachii* and *Rosenbachiana* and I can only conclude that some nurseryman got mixed in the names and coined the new one from the two! However that may be, this is almost certainly a yellow sport of *I. pumila* or *I. Chamaeiris* (the difference is in the length of the perianth tube) and it is a good colour, a full yellow with faint brown veinings. In the same colour group is *I. innominata*, a very lovely little Iris with delicate blooms in a full apricot shade. This comes well from seed and gradually forms sturdy clumps of narrow grassy leaves among which rise the flower shoots to a height of eight to twelve inches. A rather similar habit of growth is shown by Iris "Heavenly Blue," a hybrid I think, which is rather shorter in stature and fairly often will flower in June and again in September or October, the flowers being of a rich blue with gold veinings. Another good Iris which can be grown from seed is *chrysographes* which was introduced from China by George Forrest, I believe. This is a robust grower with grass a foot or so long, and flower spikes a few inches taller. The flowers are in a variety of shades of blue, from a good blue to a fine purple, with bold golden markings. There is, I believe, a number of fairly true colour strains now, but the mixture from seed is very good. There are several other Irises which I have tried with success, but most of them require more attention than these, or else are rather tall for the average rock garden. All the foregoing Irises will flourish in a good loam which does not dry out completely in summer; in a very dry site they are sometimes shy to flower.

Some difficulty is sometimes found with the *Cyananthus* species, usually in getting them established. Here, once more, the problem is simplified by starting with seed. They germinate freely and when the seedlings have been pricked off and hardened, they

transplant readily and seem to get settled into their living quarters quite happily, and produce their blue flowers freely. I have only grown two species, *C. lobatus insignis* and *C. integer*. The former is, I have found, rather less easy but I gather that in many gardens it positively ramps, where, with me, it merely rambled. The other is a most restrained little gem. It forms a circular mat of thin wiry stems with tiny thyme-like leaves, each stem ending in a flower of the most beautiful blue. Each of these flowers is cocked up so that one has a deep green mat of leaves surrounded by a brilliant sky-blue rim of flowers. This is another favourite victim of slugs in its early stages each year, but, like the other plants I mentioned, once the shoots are growing strongly it is left alone.

Bulbous plants for the rock garden are numerous and, in general, will look after themselves, in fact most of them do best when left severely alone. They, too, can readily be raised from seed, though one may have to wait for a few years for the first flowers. Growing bulbs from seed is, however, a proposition well worth considering, since the price of most of the more desirable bulbs is so high that the average grower can only afford one or two and with bulbs especially one requires a number to produce a satisfying effect.

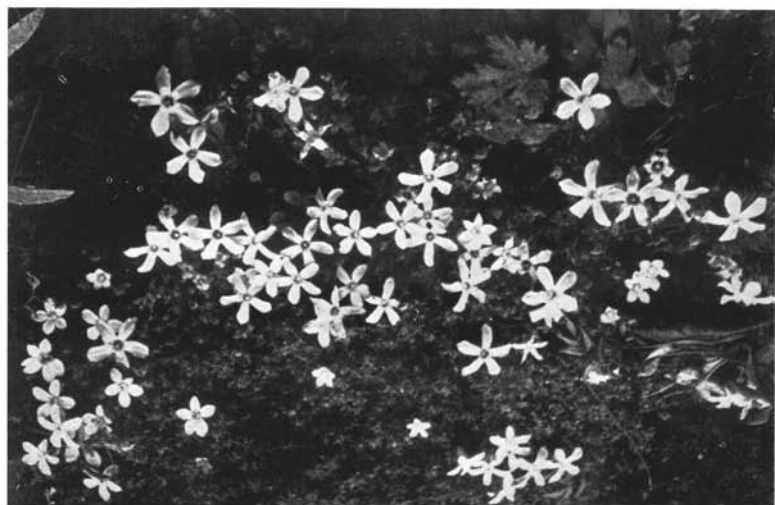
If, however, one can get one or two bulbs and flower them, careful pollination will generally lead to a good setting of seed, which, when sown, will give a big yield. The specialist growers frequently offer packets of seed of bulbous plants at a reasonable price, and, by using sterilized composts and some patience, one can acquire a good stock of bulbs which would otherwise cost a small fortune.

The various small *Narcissus*, species *Tulips* and *Crocuses* all grow freely from seed and will have reached flowering size in two to four years. For those of us of limited size means, seed is the only way of obtaining some of the rarer *Fritillarias* and the lovely *Nomocharis*. All these bulbous plants will come up year

after year and get more beautiful as time goes on and will, moreover, multiply vegetatively at the same time, so that one can gradually acquire a really extensive plantation of them. They almost all like a warm, sunny exposure, with a light loam which does not get too wet, yet does not dry out completely. Perhaps the best way of growing them is underneath some creeping subject such as *Antennaria* or *Thyme* which will keep the ground covered, hence slightly moist and at the same time weed free. It is best of course to avoid planting bulbs below anything which form a heavy wet slug-infested mass such as *Arabis* or *Aubrieta*, and further the cover should not flower at the same time as the bulbs.

Finally I should like to mention some other plants which are of value for several reasons. The first is the old favourite *Potentilla alba*; a real aristocrat with its silvery-green leaves and its pure white flowers. It will never ramp but go on slowly expanding its close tufty growth, and it flowers as continually as any plant I know, or have grown. It is almost always on my list of "In flower on New Year's Day," has odd blossoms even under the snow and goes on pretty steadily all the year round. It does not seem to set seed at all freely, but side shoots detached from the main plant will root readily and afford a means of increase.

Next comes a group of plants, the Encrusted Saxifrages. These are, of course scree plants, but will flourish in any really poor stony soil and will go on year after year with the minimum attention. They have a double value in that their rosettes are most ornamental when not in flower while their spires of flower are a joy to see dancing in the wind. Some of these plants are monocarpic in that the flowering rosette does not produce any offsets but closely allied species can usually be got which are not, and which will go on from season to season. Many of them are pure white, but the *Aizoon* group contains some pinks and yellows which are well worth getting. There is one species in the large-rosette group which I got



CYANANTHUS INTEGER



DRAGOCEPHALUM ISABELLE

under the name of *S. Macnabiana* which is unusually good as the edges of the rosette-leaves are tinged with red, and in the late summer and autumn those of the leaves which are due to die turn a most brilliant scarlet, showing up well against the silvery-green of the young leaves.

Lastly I would make an appeal for the use of dwarf flowering Alpine shrubs in the rock garden. Some purists decry this practice, but they are illogical as the mountains are clothed with them in their millions. For trouble-free return for one's money the Rhododendrons of the *Lapponicum* group are hard to beat and the really dwarf shrubby Potentillas are very fine too. *Genista hispanica* in a hard poor soil forms a superb hard cushion which each year is covered with a blanket of gold, and the dwarf shrubby Veronicas are both evergreen and fine flowering plants. The Helianthemums are apt to get a bit straggly, but a little judicious pruning each year will keep them in shape, and what a continuous flourish they will provide!

I have not mentioned any of the stock "rockery plants" which are too well-known to require comment and which are certainly trouble-free, but the above list are all plants which have quality and yet can fend for themselves and which will improve as the years roll by.

My thanks are due to Mr. Theo. A. Stephens for permission to embody in the above matter some of my notes on plants which have appeared in "My Garden" from time to time.

Note on Lewisias

By DAVID LIVINGSTONE.

LEWISIAS are now familiar exhibits at the Spring Shows of the Scottish Rock Garden Club and of the Alpine Garden Society where they have been much admired. It seems to me, however, that there is still a large number of rock garden enthusiasts who look upon this genus as difficult. This is not so, provided their requirements are met. My personal experience of their cultivation has been confined to pot work with cold frame protection from September to March, but one has only to see Lewisias in the scree and rock garden at the Royal Botanic Gardens, Edinburgh, to realise how happy they can be under proper outdoor conditions. These notes are penned in the hope that more members may be tempted to try Lewisias and the ranks of exhibitors at the shows swelled considerably. Well filled classes of well grown plants are the best advertisement the Club can have.

First of all, for the benefit of those who may not know much about Lewisias, let me give a brief note on their habitat. Without exception all are natives of the mountain ranges of Western America and are found growing at heights varying from 5,000 to 12,000 feet. The conditions under which they grow vary considerably. *Lewisia rediviva*, the State flower of Montana, is to be found growing amongst stones on mountain slopes that are baked by summer suns which give rise to desert-like conditions. *Lewisia brachycalyx* on the other hand is found in wet meadows. *Lewisia columbiana rosea*, *L. Howellii* and its closely allied species *L. L. Cotyledon*, *Purdyi*, *Finchae* and *Heckneri* are found in nature to prefer north facing cliffs and rocks as though seeking to avoid the very hot summer suns. In Scotland, needless to say, they will take all the little sun we get.

Their cultivation in pots as elsewhere is comparatively easy provided drainage is adequate; none of this genus will tolerate stagnant moisture around their parsnip-like crowns. I remember how when I first attempted to grow rock garden plants I learned by experience that *Lewisia*s must have very good drainage. I bought *L. Purdyi* in the early summer and without thinking of its requirements potted it up with only a single crock for drainage and with little sand in the compost. For a time all seemed well and I had visions of a grand display of flowers in the following Spring. Then came the Autumn rains and *L. Purdyi* sickened and died. A post-mortem revealed that the root was a rotten, pulpy mess encased in soggy stagnant soil. Since then I have always used 1 to 1½ inches of broken pot for drainage and my compost has always contained one-third sharp silver sand. The other components of my compost are one-third loam and one-third beech leaf mould with an addition of broken pot in the case of *L. rediviva*. As an added precaution against decay setting in on the crown of my plants I have always given them a good handful of sharp Bedfordshire sand around the thick root and crown. *Lewisia Howellii* and those closely related to it respond to a little bone meal or hoof and horn in the soil. I have not yet tried this addition to the compost for *L. brachycalyx* and *L. Tweedyi* but I see no reason why they should resent this additional nourishment. During their growing season *Lewisia*s should be plentifully supplied with water and they will respond with larger and more succulent-like leaves than ever, and in the following year you will reap a due reward in flowers.

The *Lewisia*s I have mentioned are easily raised from seed. *Lewisia columbiana rosea*, for instance, sheds its seeds all around and where they fall they germinate and grow, even in plunging ashes. On one of my infrequent visits home during the last war I was surprised to find that a seed of this variety had germinated in a pot of *Primula Palinuri*. Those of you who know this *Primula* will no doubt be as surprised as I was that a seedling should manage to

survive under its large floppy leaves. However there it was, somewhat elongated, but perfectly healthy and it is now growing well in a pot by itself. Perhaps I should warn that *L. L. Howellii*, *Purdyi*, *Finchae* and *Cotyledon* hybridise freely and the resulting seedlings may vary considerably from the parent plants, but most of them should be well worth cultivation. An illustration of a self sown *L. Cotyledon* hybrid will be found facing page 139. In this connection I think it is interesting to note that Mr. Ira N. Gabrielson in his book "Western American Alpines" records that he has seen these *Lewisias* on the Siskiyou mountains and doubts whether they are distinct species. *L. Howellii* and its relatives are also easily raised from cuttings taken in July, and can, I believe, be raised from leaf cuttings sharply pulled from the plant so that the leaf comes away with a "heel." I have no information on *L. Tweedyi* being raised from cuttings, but I think it would also propagate in this fashion. I doubt whether *Lewisia brachycalyx* and *L. rediviva* would propagate in this fashion. Cuttings treated in the usual way in a propagating box will root in something like four weeks. Those who have no special propagating facilities may be interested to know that I have had one hundred per cent. success with cuttings of *L. Purdyi* inserted round the pot containing the parent plant which was plunged in an uncovered frame.

The selection of species or varieties is purely a matter of personal taste, and I give a few notes about only those kinds I have grown myself. There is a good number of other *Lewisias*, some as desirable as those I mention, some less so; those listed are the most likely to be procurable in the trade now or at an early date.

L. brachycalyx.—There are two forms of this species; one with white flowers and the other with white flowers flushed pink. Both are beautiful but I have a preference for the latter. The flowers, about 2 inches in diameter, nestle in the centre of the leaves and make their appearance towards the beginning of May. Each



LEWISIA HYBRID



LEWISIA TWEEDYI

flower lasts only a day or two, but as one fades another succeeds it, thus giving a display of flowers over several weeks. After flowering the leaves begin to die back and soon all that is visible is the little green heart of the plant. At this stage I never water as I find the rainfall is quite adequate. By late Autumn growth has begun, and as the lights are then in place I begin to water again increasing the supply as the days lengthen.

L. columbiana rosea.—This variety is perhaps the easiest of the genus and flowers over a longer period than any other *Lewisia*. It makes small rosettes of dark evergreen leaves which are attractive in themselves. From April to November there seems to be an endless succession of sprays of small rosy purple flowers. The type plant *L. columbiana* has white or pale pink flowers which are not nearly so attractive.

The next five species are very similar. All have rosettes of large thick evergreen leaves and all produce branched stems from 6 to 10 inches high each carrying from 12 to 36 fairly large open flowers.

L. Cotyledon has orange flowers striped pink.

L. Finchae has soft pink flowers.

L. Heckneri is easily identified by its sharply toothed leaves. It has salmon pink flowers.

L. Howellii has distinctive crinkled leaves and has apricot flowers striped pink.

L. Purdy is in my opinion the best of this section. It is much more floriferous and a well grown plant with several dozen apricot and pink flowers is a sight to be remembered. My best plant of this species, five years old from seed, had 22 stems with something like 30 buds and flowers to each stem.

L. rediviva.—Many are the tales of how this species has retained life even after years in herbaria. One such story will suffice here. A collected plant received at Kew was immersed in boiling water in order to kill any spark of life left in it. It was then put away in the herbarium. Eighteen months after it was seen to exhibit symptoms of life and on being planted out actually flowered.

L. rediviva var. *Winifred Herdman*.—An improvement on the type was described in the 1946 Journal of the Scottish Rock Garden Club and as its cultivation was also adequately dealt with I will confine myself to one observation. Mr. Corsar says that except in very dry districts some sort of protection from rain in winter will be necessary. I would add that cloche protection from rain is also necessary in very wet summers such as we had this year.

L. Tweedyi is regarded by many as the most beautiful of the genus, but this is a matter of personal taste. It is quite different from the others having rosettes of broad evergreen leaves which are widest at the outer ends and curl upwards. The flowers, borne on single stems, are pale apricot in colour and are the largest in the family.

Flowerbulbs and Tubers which will make your Rock Garden more interesting than ever!

By JOHN M. VAN BLITTERSWIJK.

IT is true that a lot of people do not favour flower bulbs in their rock garden, but it is my opinion that if they knew the proper way how to treat and use them, there should be nothing more fascinating to them than to watch the development and growth of their bulbs. There can be but few flower lovers to whom the charming bulbous plants do not appeal.

My endeavour in this article is to plead with the gardening fraternity to cultivate at least some of the many bulbous plants for the sake of their beautiful flowers.

There is a peculiar charm about bulbous plants, arising partly, no doubt, from their peculiar sweetness, but also perhaps from the mystery of their lives.

They are not always with us; they grow, bloom, fade and retire underground. They are just like sensible visitors, they come when wanted, they go when not wanted. The bulbs hide away as soon as their beauty fades and are no more to be seen till a new life of verdure, charm and fragrance bursts forth again, when and where most wanted. The temporary rest of the bulb is also most favourable to its transportation to a new place.

The majority of the bulbs flower mainly at a period of the year when there is a paucity of other flowering plants. There are in the great family of bulbs and tubers precious blossoms which add more colour and gaiety to our gardens. In winter, for example, some hardy Cyclamen, Winter Aconites and Snowdrops grace the rockery with simple beauty. In spring we cherish the dainty Crocus, Squill, Narcissus, Glory of the Snow, Tulips, Bluebells, Anemones and so on. They are only a few of the many beautiful kinds that can flood your rockery. In summer we have Lilies, early flowering Gladioli, Ixia and Sparaxis. When the autumn arrives there are the autumn flowering Crocus

to vie with the richness of the dying autumnal tints.

Bulbs, indeed, are indispensable members of the vegetable kingdom, and it is well that we have not only a large number of genera and species, but also, thanks to our bulb growers, such a wonderful number of pretty varieties to suit all conditions of growth and all tastes regarding form and colour.

In speaking of the various types of roots and underground stems, most gardeners and seedsmen use the term "bulb". Although definitions are always more or less of a bugbear to the amateur gardener, who loves the plants in his garden for their intrinsic beauty. To him the colour of the flowers, and perhaps the foliage, the form and general effect of the plant in question are far more important than its botanical structure. To be sure, the various parts of the physical plant are important to him, but only in so far as they may relate to the need for special care or treatment. But to enable the amateur to differentiate between a bulb, a corm, a tuber and a rhizome certain definitions will follow below.

"What is a bulb?" some readers may be inclined to ask. A bulb is a storage organ and may be defined as a modified underground stem surrounded at its base with fleshy scales rolled round each other, as in the case of the Hyacinth, or overlapping as in a Lily bulb. These scales are really modified leaves, and their office is to hold food in reserve for supporting the embryo stem and flowers within, until new roots are formed to collect additional food to meet the requirements of the new growing stem. The fleshy scales are the storehouses of food, collected by the roots and elaborated by the leaves and sent down by them the year before in readiness for the new stems to draw upon the next season. The so called bulbils are small bulbs borne in the axils of the leaves, for example "Tiger Lily"—*Lilium tigrinum*. The bulbils should not be confused with bulblets, which are small bulbs developing usually from, or close to, a mature mother bulb.

"What is a corm?" Instead of fleshy scales we find a solid substance, with just a few faint ridges on the



GENTIANA ACAULIS



IRIS PUMILA

outside, which are the remains of the few thin scales the corm produced in a younger stage of development. This solid contents is also reserve food prepared in the same way as that described in the case of bulbs. This food is wholly utilised by the young growth and flowers. At the end of the season the corm which contained it will be found shrivelled up and new corms are formed to take its place.

“What is a tuber?” A tuber is a swollen underground stem, which may simply be an enlargement of a root of one season’s duration only, or an individual growth of perennial duration as in the case of the Winter Aconite. It has almost invisible leaf-scales upon its outer surface and a solid body within composed of reserve food for supporting future growth. Tubers can vary a great deal in size and shape.

“What is a rhizome?” The rhizome or rootstock is a stem creeping on or under the surface, eventually rooting and forming a new plant. Rhizomes have a starchy structure which provides for food storage as well as for reproduction.

Those people who possess a rockery may derive a great deal of pleasure from the cultivation of the many kinds of “dwarf” bulbous plants. The elevated soil of a properly constructed rockery ensures a well-drained site, just what most bulbs like. Crannies and nooks afford ideal homes for small colonies of these interesting plants.

In case the alpine plants will impoverish the soil, which they sometimes do, and the bulbs should show signs of deterioration it is advisable to lift them when their foliage has died off. The soil ought to be taken away and replenished with fresh soil and the bulbs may be replanted on the same place as before.

Each genus or family of bulbs will require its own special soil and position, details of which are given in the list of sorts. There also will be found information as to depth and distance between the bulbs which are to be planted, and I have also mentioned the proper time of planting and whether protection against frost is needed.

ALLIUM or ONIONWORT are among the most useful and ancient of all known plants. Too few amateurs realise the beauty and the decorative qualities of Allium.

A. Moly (luteum), the "Golden Garlic," yellow ...
A. Ostrowskianum, rose ...

ANEMONES or WINDFLOWER are known by everyone and therefore need no further description.

A. hortensis fulgens is best grown on a partially shaded rockery ...

BABIANA are fine bulbous plants from the Cape. They require a very sunny position.

B. disticha, very striking blue ...
B. macrantha, yellow with purple ...
B. ringens, scarlet ...

BRODIAEA or CALIFORNIAN HYACINTHS. Being somewhat of a tender nature they require a warm position. Summer rains are very injurious to the roots, therefore they should be planted in coarse, gritty soil. They are very effective when planted in small groups. The flowers are fine for cutting and last a long time.

B. Bridgesi, violet pink ...
B. coccinea, crimson, edged green ...
B. grandiflora, dark blue ...
B. ixioides splendens, large umbels of yellow flowers ...
B. minor, deep blue ...

Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
May/June	10	ordinary	Sept./Oct.	3	5 no
"	6	sandy loam	"	3	6 no
Apr./June	10	rich loam	November	2-3	4 yes
June/July	5	sandy loam	Oct./Nov.	4	6 yes
"	6	"	October	4	6 yes
"	6	"	"	4	6 yes
June	20	sandy loam	October	4	6 no
"	24	"	"	4	10 no
"	8	"	"	4	5 no
"	10	"	"	4	6 no
"	6	"	"	4	5 no

CALOCHORTUS MARIPOSA LILY or CALIFORNIAN TULIP. The flowers are fairly large, very beautiful in shape and varied in colour. Truly these flowers are bizarre creations of nature with a charm all their own. To be sure, they are not easy to grow, but they do offer the genuine garden lover a new experience as he enjoys their strange flowers.

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>C. amabilis</i> , golden yellow	... May/June	6	sandy loam	Nov.	3 5	yes
<i>C. amenus</i> , soft rose pink	... July	14	"	"	3 5	yes
<i>C. lilacinus</i> , lilac flowers	... June/July	9	"	"	3 6	yes
<i>C. Leichtlini</i> , smoky white flowers with black blotches	... "	6	"	"	3 5	yes

CHIONODOXA. Few plants have been more appropriately named than *Chionodoxa*, which is Greek for "Glory of the Snow!" A genus of small dainty flowering bulbs, natives of the mountains of Crete and Asia Minor, which produce their cheery blossoms early in the year. They can be planted in great masses for carpet effects.

<i>C. gigantea</i> (Alleni), large light blue flowers	... March	6	"	Oct.	3 3	no
<i>C. Luciliae</i> , bright blue	... "	5	"	"	3 3	no
<i>C. nana</i> , minute white, blue tinged	... April	4	"	"	3 2	no
<i>C. sardensis</i> . Gentian blue	... March	5	"	"	3 3	no

CROCUS. A very well known and deservedly popular genus of plants, which brave the winds and frosts of declining winter. Some species flower throughout the autumn months, others in early spring. The spring flowering species are far more numerous than the autumn flowering ones. All the varieties are very suitable for rockery cultivation, for they like a sunny position, although they do not dislike partial shade too. They form dense masses of vivid colours in autumn or spring. Crocus are absolute hardy and can remain undisturbed for years.

Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
SPRING FLOWERING CROCUS :					
C. Albion striped, violet striped
C. Early Perfection, violet purple, very free flowering
C. King of the Whites, pure white
C. Niggerboy, blackish purple, the darkest variety
C. Pallas, light violet, white striped
C. Purpurea Grandiflora, purple blue
C. Queen of the Blues, light blue with light margin
C. Snowstorm, pure white, large flowers
C. Yellow, the yellow Crocus as a rule open their flowers before the other varieties
	Feb./Mar.	sandy loam	Oct./Nov.	3	3 no

AUTUMN FLOWERING CROCUS :

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed ?
<i>C. asturicus atropurpureus</i> , dark violet, very late
<i>C. cancellatus</i> , pale blue
<i>C. cancellatus albus</i> , white
<i>C. hyemalis</i> , white with black lines
<i>C. levigatus Fontenayi</i> , rosy lilac, buff exterior	...	4.5	sandy loam	August	3	no
<i>C. speciosus</i> , bright blue
<i>C. zonatus</i> , rosy lilac with yellow throat

CYCLAMEN or SOWBREAD. The hardy species of Cyclamen are dainty, tuberous rooted plants for culture on the rockery. The Cyclamen has not only beautiful,—and several of the species delicious fragrant flowers,—but is also distinguished by great beauty and variety of foliage. The best position on the rockery is one facing north west. They are not difficult to cultivate, provided they are not planted in too sunny a spot and they have a suitable compost in which to grow. A mixture of sandy loam, peat, leaf mould suits their requirements. The crowns of the corms are to be planted just below the surface and it is a good thing to place some sand under each corm. When the leaves wither rake away some of the surface soil and give a top dressing of decayed manure and leaf mould. In severe weather protect the plants by a covering of bracken, tree leaves or light litter.

AUTUMN FLOWERING :

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>C. africanum</i> (macrophyllum), pink, large leaves	... Autumn	6	peat, leaf mould and loam	Aug.	—	—
<i>C. cilicium</i> , pink, leaves beautifully marbled	... Winter	5	"	"	—	—
<i>C. europaeum</i> , rosy crimson, sweet scented	... Autumn	4	"	"	—	—
<i>C. neapolitanum</i> (hederæfolium), pink, foliage silver marbled	"	4	"	"	—	—

SPRING FLOWERING :

<i>C. Atkinsi rubrum</i> , crimson, foliage marbled	... Spring	4	"	Oct.	—	—
<i>C. Atkinsi album</i> , white	... "	4	"	"	—	—
<i>C. Coum</i> , bright crimson pink, very early flowering	... "	4	"	Sept.	—	—
<i>C. Coum album</i> , white	... "	4	"	"	—	—
<i>C. Coum roseum</i> , pink	... "	4	"	"	—	—
<i>C. ibericum var.</i> , deep rose pink	... Feb.	4	"	Oct.	—	—
<i>C. repandum (vernium)</i> , bright crimson	... Mar.	4	"	Sept.	—	—

ERANTHIS. The inconsequential name Eranthis means

"Flower of Sping" in Greek. It flowers sometimes in late December or early January, during a mild spell of weather. Eranthis is usually called "Winter Aconite." These bright buttercups from high places in Europe, remind us each year of the masses of gold which summer will bring forth.

E. cilicica, foliage bronzy and very finely cut, flowers golden yellow. This variety flowers somewhat later than *hyemalis*...

E. hyemalis, the ordinary "Winter Aconite," flowers bright yellow ...

E. Tubergeni, golden yellow flowers. The flowers last a considerable time as they are sterile ...

	Jan./Feb.	3-4	turfy loam	Sept.	2	2	no
	"	"	"	"	2	2	no
	"	"	"	"	2	2	no

FRITILLARIA MELEAGRIS has been called the "Snake's Head Lily," the "Chequered Lily," "Turkey Hen," and "Guinea Fowl Flower." The pattern of the flowers is beautifully chequered. This, together with the fact that each bloom hangs on a short, drooping stem and resembles the head of a snake in motion is responsible for the first names.

- F. M. Aphrodite, large white flowers ...
- F. M. Artemis, grey purple ...
- F. M. Charon, dark purple ...
- F. M. Orion, purple ...
- F. M. Saturnus, pink ...

Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
Apr.	12	moisty loam	Sept./Oct.	4 5	yes

GALANTHUS. It may be truly said that everyone has an affection for the modest Snowdrop, which greets us with its snow white blossoms from January to March. They need no lifting; leave them to nature. They prefer rather moist and cool soil.

- G. cilicicus*, winter flowering ...
- G. Elwesii*, large flowering ...
- G. Ikarica*, very rare, late flowering ...
- G. nivalis simplex*, common snowdrop ...
- G. nivalis flore pleno*, double snowdrop ...
- G. nivalis maximus*, very large flowers on long stems ...
- G. plicatus*, "The Crimean Snowdrop" ...

Jan./Mar.	3-7	ordinary moist and cool soil	"	5 3	no
Jan./Feb.	12	"	"	5 4	no

GLADIOLI or CORN FLAG is one of the most attractive and beautiful garden flowers. The species are numerous. There is a rather new strain, viz. *Gladioli Tubergeni*. It grows to a height of 30 inches and has narrow thin foliage, and the flowers have some resemblance to the old well known *Gladioli Cotivillei*, but they are larger, more elegant and loose.

<i>G. Tubergeni</i> "Charm," the flowers are purplish pink with white centre ... ..	... ..	...	...	...	...	...
<i>G. Tubergeni rubicunda</i> , carmine, with conspicuous white blotch ... ..	... ..	...	...	...	...	...
<i>G. nanus Ackermanni</i> , orange scarlet ... ..	... ..	...	...	...	...	...
<i>G. nanus</i> "Blushing Bride" (Delicatissima), white with carmine flakes ... ..	... ..	...	...	...	...	...
<i>G. nanus</i> "Nymph," snow white with red flakes ... ..	... ..	...	...	...	...	...
<i>G. nanus</i> "Orangeade," soft salmon ... ..	... ..	...	...	...	...	...
<i>G. nanus</i> "Peach Blossom," delicate pink ... ..	... ..	...	...	...	...	...
<i>G. nanus</i> "Spitfire," scarlet vermillion with violet flakes ... ..	... ..	...	...	...	...	...

The Gladioli corms should be dug in the late fall after a killing frost. It is the best way to cut the stems close to the ground before lifting. After the lifted bulbs have been dried and the soil has been shaken off, separate the newly developed corms from the remains of the old ones, which may then be discarded. Store the corms in a frostproof cool place.

Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
June/July	25-35	ordinary	Mar.	5-6 6	—

IRIS. The true bulbous members of the great Iris family have not received the attention that they deserve in our gardens. Several kinds are procurable, listed as Dutch, English, and Spanish Irises. For the Rock-garden I should like to recommend specially the *Iris reticulata*. It is perfectly hardy and it flowers very early. I have seen it pushing up its rich violet and golden blotched flowers through the snow.

<i>I. reticulata</i> , violet and golden blotches	...				
" Cantab," bright blue with orange markings	...				
" Cyanea," varying shades of light blue	...				
" Hercules," bronzy violet with orange crest	...	Feb.	3	4	no
" J. S. Dijt," reddish purplish flowers	...				

IXIA OR AFRICAN CORN LILY. Many of our cherished bulbous plants come from the Cape of Good Hope and among them the *Ixia*. This small cormous plant is a member of the Iris family. Star shaped flowers, often marked with darker blotches near the bases of petals, give this little known genus distinction.

<i>I.</i> "Afterglow," orange buff, darker centre	...				
<i>I.</i> "Azurea," blue, purple centre	...				
<i>I.</i> "Bridesmaid," white, carmine eye	...				
<i>I.</i> "Englishton," violet pink	...				
<i>I.</i> "Lady Slade," cerise	...				
<i>I.</i> "Lucious," golden yellow...	...				
<i>I. viridiflora</i> , light greenish, exceptional colour	...				
<i>I.</i> "Vulcan," scarlet, shaded soft orange	...				
<i>I.</i> "Wonder ("rosea plena"), pink, double flowering	...	May/June	12	3	4
				Nov./Dec	yes

LILIUM. In thinking of rock-gardens one is liable to have in mind only dwarf and creeping plants, but in a rockery there should be plants that would throw up good flower spikes here and there to break the flatness and *Yucca filamentosa* is sometimes used for that purpose. Why not use Lilies in such places? If it is necessary to confine oneself to the dwarfer types then the brilliant gem of a Lily *L. tenuifolium* should be used, also its companion *L. tenuifolium* "Golden Gleam." The several vars. of *L. elegans* in their dwarf, compact stature and varying in shades, from yellow to orange and red, readily adapt themselves to this purpose. Then we have the varieties of smaller stature as in *L. concolor*, *L. coridion* and also in the beautiful pink forms of *L. Krameri*, which require the perfect drainage that is to be found in any good rock-garden. The genus *Lilium* may fittingly be described as the queen of bulbous rooted plants. They are stately in growth, and rich, beautiful and gorgeous in blossom.

Lilium tenuifolium and *L. t.* "Golden Gleam" flower in June 20 inches high and grow well in good ordinary soil. Time of planting: Oct./Nov., 6 inches deep, distance 6 inches.

Lilium elegans flowers also in June and grows about 1 ft. high, they prefer partial shade and loam with somewhat leaf mould, Planting time: Oct./Nov. or Feb. Depth, 6 inches: distance, 8 inches.

Lilium concolor flowers in July 1 ft. high and thrives well in ordinary good soil. Time of planting: Oct./Nov. or Feb. Depth, 6 inches: distance, 6 inches.

Lilium coridion, citron yellow, flowers in June and grows in good ordinary soil, 1½ ft. high. Time of planting: Oct./Nov. Depth, 6 inches: distance, 6 inches.

Lilium Krameri, pink, flowering period July/Aug., they prefer partial shade, loam and leaf mould. Height, 2½ ft. Time of planting: Oct./Nov. or Feb./Mar. Depth, 6 inches: distance, 8 inches.

HYACINTHUS MUSCARI or GRAPE HYACINTHS have all the daintiness of many of our miniature spring flowering bulbs. Their delicate spires of blue and white loom up like fairy sceptres. The little flowers do not open into bells like those of the large Hyacinths (*Hyacinthus orientalis*) but they remain round. No doubt this character is responsible for the appropriate name "Grape Hyacinth." They like perfect drainage and they never do well when planted in soil which is puddly or sticky for a long time after a heavy rain. After planting sprinkle $\frac{1}{4}$ -inch of sand or small cinders on the surface, to keep at bay the small slugs which might tackle the young shoots when they break through.

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>M. armeniacum</i> , cobalt blue flowers with white rim	... Mar.	6	sandy loam	Oct.	3 4	no
<i>M. azureum</i> , bright blue	...	6	"	"	3 4	no
<i>M. botryoides</i> , the ordinary "Grape Hyacinth"	...	6	"	"	3 4	no
<i>M. botryoides album</i> , pure white, early	...	6	"	"	3 4	no
<i>M. comosum</i> , "Tassel Hyacinth," greenish, purple tops	... Apr.	12	"	"	3 6	no
<i>M. moschatum</i> , "Musk Hyacinth," purple-violet	...	9	"	"	3 5	no
<i>M. moschatum major</i> , purple turning pale yellow, rare	...	9	"	"	3 5	no
<i>M. plumosum</i> , "Feather Hyacinth," mauve	... Mar.	6	"	"	3 5	no

NARCISSI and DAFFODILS.	Do you know these fairy like little Daffodils and Narcissi?	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>N. Bulbocodium</i> , Hoop Petticoat, yellow	...	Mar.	7	ordinary	Sept./Oct.	3 4	no
" <i>citrinus</i> , pale yellow	...	"	7	"	"	3 4	"
" <i>Chusii monophyllus</i> , pure white	...	"	7	"	"	3 4	"
<i>N. canaliculatus</i> , miniature Polyanthus N., bearing diminutive clusters of small white flowers with golden cup	...	"	5	"	"	3 4	"
<i>N. cernuus</i> (<i>moschatus</i>), silvery white trumpets	...	"	6	"	"	3 4	"
<i>N. cyclamineus</i> , the flowers are clear yellow, its petals are so markedly reflexed as to resemble those of Cyclamen	...	"	6	"	"	3 4	"
<i>N. cyclamineus</i> , February Gold, yellow perianth, slightly reflexing, trumpet golden orange. It flowers usually in early March and blooms 4 weeks or more	...	"	6	"	"	3 4	"
<i>N. Johnstoni</i> Queen of Spain, delicate pale yellow trumpet and reflexed perianth	...	"	12	"	"	4 5	"
<i>N. minimus</i> , the dwarfest of all trumpet Daffodils	...	Feb.	4	"	"	3 4	"
<i>N. nanus</i> , white and sulphur trumpet	...	"	6	"	"	4 5	"
<i>N. triandrus albus</i> , the ever beloved "Angel's Tears," creamy white flowers, reflexing perianth	...	Mar.	6	"	"	4 5	"
<i>N. triandrus</i> Thalia, snow white flowers, late flowering	...	"	6	"	"	4 5	"

Do you know these fairy like little Daffodils and Narcissi? These faithful miniatures bloom at the same time as the large Daffodils and Narcissi you know so well. Several hybrids of this delightful family have won their way into the heart of Narcissi lovers, and to see them is to want them all.



BRODIAEA IXIOIDES SPLENDENS



FRITILLARIA MELEAGRIS and var. ALBA

Jonguilla "Golden Sceptre," golden yellow, fairly large, sweet scented
J. Helena gracilis, light sulphur yellow, very sweet scented, flowers in May
J. odorus minor, bright yellow, rare
 All these gems like dampish ground and a little shade. Shady rocky pockets, within the spread of an evergreen shrub or beneath the branches of a tree are ideal situations for small colonies.

Flowering Period	Height in inches	Kind of soil	Time to plant Sept./Oct.	Depth and Distance in inches		Is prot. needed?
				4	6	
Apr.	18	ordinary	Sept./Oct.	4	6	no
"	12	"	"	4	6	"
"	12	"	"	4	6	"
June	18	sandy loam	Oct.	4	5	"
"	12	"	"	4	4	"
May	8	ordinary	"	3	4	"

ORNITHOGALUM. The name Ornithogalum is supposed to have been given to the genus by Pliny, from some fancied resemblance of the flowers or roots to the feathers or beaks of birds. The resemblance, however, is far from obvious and the origin of the name is more or less shrouded in mystery. Once planted they need no further attention, they will soon produce a mass of clusters of star-like blossoms.

O. arabicum, flowers white with glistening black centre
O. aureum, flowers orange yellow
O. umbellatum (Star of Bethlehem), white with green band, very pretty

OXALIS. Extremely showy and even useful as some of these plants are, they never became very popular in our gardens. It is difficult to account for this, for they are as easily cultivated as they are beautiful.

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>O. adenophylla</i> , lilac pink, with white centre	May/June	4	ordinary	Sept./Oct.	2 4	yes
<i>O. Deppii tetraphylla</i> , (speciosa), rosy pink	June/July	4	"	"	2 4	"
<i>O. enneaphylla</i> , waxy white flowers	Apr./May	5	"	"	2 4	"
<i>O. cernua</i> (<i>lutea</i>), bright yellow	"	6	"	"	2 4	"

PUSCHKINIA. In calling your attention to the Lebanon Squill, we are speaking on behalf of an oft-neglected early April flowering bulb. It is one of the most exquisite grown. The white of the little bell-shaped flowers is shaded and pencilled with a delicate shade of blue. The flowers last a long time. Choose a partially shaded but sheltered spot, where the protection is afforded against those cold north and east winds.

<i>P. libanotica</i> , flowers white, shaded blue	Apr./May	6	sandy loam	"	3 3	no
<i>P. libanotica alba</i> , pure white	"	6	"	"	3 3	"

SCILLA. These are among the most interesting and lovely of all our hardy bulbs. They endure the hardships of wind, rain, and late snow to forge their way into the spring landscape. The May-flowering Squills, the English Blue Bells in varieties, establish themselves very easy and may be planted even in shaded places where few other plants will grow.

	Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is prot. needed?
<i>S. campanulata</i> , in varieties, May-flowering	...	8	sandy loam	Sept./Oct.	4 6	no
<i>S. nutans</i> , in varieties, May-flowering	...	8	"	"	4 6	"
<i>S. sibirica</i> (<i>præcox</i>), the Siberian Squill, bright blue	...	6	ordinary	"	3 3	"
<i>S. sibirica</i> , "Spring Beauty," deep blue	...	8	"	"	4 5	"
<i>S. Tubergeniana</i> . Is one of the uncommon and most charming of the early flowering bulbs. The colour of the flowers is unusual and delicate light blue with somewhat darker stripes down the petals	...	8	"	"	4 5	"

SPARAXIS. This member of the Iris family, native to South Africa, is commonly known as "Wandflower,". Somewhat larger than *Ixias*, to which they are related, these curiously marked, starry flowers vary greatly in colour. Many striking colour combinations are available in the newer hybrids. As one would expect, the Dutch growers were fascinated with these unusual cormous plants, and they did much to improve them.

- S. tricolor* "Ariadne," white, yellow centre, and black bordered
- S. tricolor* "Fire King," orange-scarlet, centre black and golden
- S. tricolor* "Jeanette," soft pink, white eye
- S. tricolor* "Jesco," mauve with yellow centre
- S. tricolor* "Monica," pink, golden centre, surrounded dark crimson
- S. tricolor* "Novelty," purple, white centre

STERNBERGIA. A bit of fresh golden yellow colour for the Autumn rock garden is provided by the cheery cups of *Sternbergia lutea*. This tiny bulbous plant has long remained an overlooked possibility. *Sternbergia* develops its foliage shortly before it blooms adding to the beauty of the richly textured flowers, which come forth usually in Sept. They prefer full sun.

- S. lutea*, golden yellow ("Lily of the Field")

Flowering Period	Height in inches	Kind of soil	Time to plant	Depth and Distance in inches	Is proof needed?
May/June	6-10	sandy loam	the end of Oct. or Nov.	3 4	yes
Sept.	12	sandy loam, add some leaf mould	Aug.	4 6	..



TULIPA TARDA



CYCLAMEN EUROPÆUM

BOTANICAL OR SPECIES TULIPS There is no question that the various races of the Tulip rank high in popularity. They possess the merit of being easy of cultivation and brilliant in colour. Our garden Tulips have developed from wild species, patiently selected and hybridized over generations of interest. Many of the species are of great garden interest and uniquely beautiful. They do best in good garden soil, in full sunshine, and it is necessary that they have good drainage. Time to plant: Sep./Oct., depth 7 in., distance 5 ins.

T. acuminata (*cornuta stenopetala*), light yellow and red lines, with long narrow twisted petals. Flowering Mid/May. Height 16 ins.

T. chrysantha, yellow, outside red. May-flowering. Height 6 ins.

T. Chusiana, the graceful little "Lady Tulip," with slender white flowers, marked outside with cherry-red. It fits itself into many places in the rock-garden, in any little nook where its gay flowers can show themselves. Height 12 ins.

T. Eichleri, crimson-scarlet with light reverse markings, above the glistening black base. Flowering in May. Height 12 ins.

T. Fosteriana "Cantate," brilliant vermilion red. White shiny green foliage. Flowering in May. Height 12 ins.

T. Fosteriana "Mad. Lefebvre" (syn. "Red Emperor."). Bright vermilion scarlet, very large flower. Flowering in April. Height 22 ins.

T. Fosteriana "Princeps." Orange scarlet. Very large and also May-flowering. Height 12 ins.

T. Greigii, orange scarlet flowers on 10-inch stems. May.

T. Hageri, mahogany red, with the reverse of the petals buff and orange. Height 6 ins. Apr./May.

T. Kaufmanniana known as the "Waterlily Tulip" has become a rock garden favourite. White, yellowish tinged, pink outside. The earliest to flower of all Tulips. Height 8 ins.

T. Marjoletti, pale, straw yellow, outside rosy red. The cup is decorated with sooty green blotches. Height 18 ins. May.

T. præstans, Van Tubergen's var., scarlet orange, 2-4 flowers to a stalk. May. Height 10 ins. yellow

T. saxatilis, bearing often two lilac flowers with centre on each stem. Height 12 ins.

T. sylvestris (*florentina odorata*), golden yellow, fragrant. Height 15 ins.

T. tarda (syn. *dasytemon*), white with large yellow eye, 3-5 flowers on each stem.

While holding firmly to a dislike for the "musts," "oughts," "shoulds," and other necessities set up by the dry directions so often encountered, I have yet endeavoured to include cultural suggestions for each individual item. I believe these are well worth following and hope they are worthy of the attention of acute amateurs.

Heaths and Heathers at Edinburgh

By R. E. COOPER, F.R.S.E.

THE Heaths and Heathers in the Royal Botanic Garden at Edinburgh were at one time scattered throughout the rock garden with no particular setting and gave brilliant patches of colour in almost every month of the year. It was deemed possible to bring them together and set them in such a way that visitors to Scotland who perchance could not see the glory of the Scottish hills could see in Edinburgh something of their effect in miniature and also become aware of their range of form and beauty.

In their homes these plants are not particular to soil so long as it is not chalky and is not waterlogged. Drainage they must have ; drought they can endure. Some love the sun, others will stand shade, while a percentage of leaf soil or peat moss litter will keep them all happy.

Force of circumstances ordained the surround of an old Beech tree to be the site at Edinburgh, some of the soil being pure sand under a thin skin of turf and the rest a pile of queer stuff excavated from the neighbouring streets where the channels were cut in them to take the underground cables of the trams. The Beech-tree roots run all through it. A nine foot Holly hedge grows on the eastern crest and the rock garden bounds the west.

The ground was cleared and well dug, considerable quantities of leaf soil and peat-moss litter being added. At the same time the surface was thrown into ridge and hollow to simulate little glens. The problem of screening the Holly hedge was met by arranging some biggish flowering shrubs—Escallonia and Buddleia—in front of it.

Now, however glorious large stretches of Heaths and Heathers may be in flower, they are dull at other times. A certain relief is possible by setting together of types of a differing habit, for some are dwarf and compact and fit for the mouth of the glen or edging the paths ; others can be massed in stretches as on a moor or set among rocks, while the taller tree-forms can be used on the crest of a ridge to heighten it or to make a background. There are forms too with coloured foliage *C. vulgaris* v. *cuprea* and v. *aurea*, as decorative as flower.

Even so, the different species flowering at different times tend to make the place a little patchy, and as time goes on and renovation is necessary, it may even look moth-eaten. The patchiness can be lessened by putting together two types, one of which is sufficiently different in habit to act not only as a foil but almost as a screen. There is no need to have strongly marked lines of division. Outliers from one group set among the fringes of another break the lines and harmonise in other ways, but the best way to screen and blend the different forms is to use other, totally different, plants which are happy in an acid soil to serve in that way.

These exotic plants, so to speak, may be evergreen and range from Blaeberreries and dwarf conifers to Rhododendrons some feet high. They may be deciduous, yet carry flowers as do Witch Hazel, *Daphne Mezereum*, *Rhod. praecox* and Brooms. They may be gay with autumn-berry Cotoneaster and Berberis—or coloured Jap Maple, the Pontic Oak and the Spindle wood.

A young Birch tree sits well among the Heather and can be foiled with a Rowan for its scented flowers, summery berry and autumn colour ; and if you so incline will keep out the witches. At one time in the

rock garden there used to be a wee group of Heathers which had a small Lily growing through it. That may set you thinking. At Edinburgh there is a tree Paeony (*P. Delavayi*) standing by a Spanish Broom, and although its flowers are 3-4 inches across, their chocolate colour makes them almost invisible; but their fragrance scents the air for yards around. These were some of the factors that came to mind when the Edinburgh Heath and Heather garden was being made.

It was, as all new conceptions are, a place of trial and error, and its construction was always governed by the material available to work with. Thousands of plants were required. Rocks were set at the east side of the entrance to make a tilted bed of rock facing south, and elsewhere as outcrops. Gradually it grew, a larger swathe of one variety appearing as the stock was increased from sometimes only two or three plants. It excited interest as well as admiration. A local resident whose hobby for years had been to wander over the Pentland Hills looking for variations from the normal Heather (these occur more frequently than you would imagine) presented his collection, which contained, among other things, the variety called "Tib." The British Isles were canvassed for varieties and forms. A horticultural firm lauded their most recent acquisitions at one of the Club's Shows only to find that the enterprising "Botanics" already had them growing in the Heather garden.

As it grew, its fame spread. V.I.P.s from other countries are given a sprig of White Heather, if it is available, to bring them luck. Huge bunches of the H. E. Beale form of Heather were sent to Red Cross Sales during the war and that particular form has also been sent by air mail to Australia, Canada and South Africa to cheer folk up. It arrived in first class condition and, as might be expected, generated tremendous enthusiasm. As "cut flower" it lasts for weeks.



Edinburgh Royal Botanic Gardens—THE HEATH GARDEN



Edinburgh Royal Botanic Gardens—HEATH GARDEN looking E.S.E.

A book could be filled with the various contributions of plants for the Heather garden and still more would come to mind ; so, instead of writing them down, accept the first invitation to go and see it.

Note.—“ Heath Ale,” Journ. No. 1, p. 35. Since the issue of the Journal No. 1 1937, a note has been found in the Trans. Royal Society, Edinburgh, which states that as the result of extensive investigations and trials by brewers, nothing fermentable has been found so that the brewing of heath ale *per se* can only be a folk tale.

Sedums

By HENRY ARCHIBALD.

SEDUMS are a most useful class of plant for the rock garden. Where the soil is too shallow or poor, or the position too exposed or hot for other plants, many Sedums will grow and thrive.

The writer remembers visiting a disused slate quarry on Tweed-side where to his delight he found plants of *S. album* (native variety) growing and flowering in profusion on some of the rejected slates, with no more soil than that provided by the dust from the public road nearby. Most Sedums, however, do not live and thrive on such spartan fare.

S. acre, the yellow Stonecrop, is a well-known variety, but it would be prudent to keep a watchful eye upon it, and upon *S. lydium*, lest they get a foothold in the chips of the garden paths. The Dutch hoe is of no use in that event, for the simple reason that every minute chip starts off again on a new career.

One of the larger kinds, *S. roseum*, with its arching stems and numerous glaucous leaves, is a thing of beauty, especially on a spring or summer morning, when each leaf axil holds, and retains for a time, a dew-drop which shines like a glistening pearl in the morning sunshine.

The most beautiful in foliage and habit is surely *S. Sieboldi* (var). Its arching stems rise only a few inches above the soil, clad with their fleshy, glaucous, green and cream-tinted leaves. This plant is generally grown in a cool greenhouse as a foliage plant, but I have found that it can survive the severest winter, even at an elevation of 750 feet, provided that the root is covered by a boulder.

Barely two inches in height, *S. spathulifolium* var. *purpureum* ranks next in foliage colour effect. It will withstand the most severe conditions, and a few plants inserted into a piece of rotted turf will in a season or

two form a lovely purple dome on top of a boulder or flat stone which will be the delight and envy of all who see it. A top dressing of soil will ensure its compactness.

A most unique variety is *S. Stahlia*, and one which invariably attracts attention because of the peculiar shape of its numerous purple leaves. These are just like so many purple eggs, which drop off on the slightest provocation and which in a short time take root and start producing little eggs on their own. Unfortunately this plant will not withstand sharp frost.

S. spurium splendens is well known to rock gardeners for its brilliant ruby-red flowers. I find, after repeated experiments, that unless this is planted in light soil and exposed to maximum sunshine the colour becomes pale. The "splendens" goes out of the picture and one is left with plain pale "spurium." Probably this curious behaviour explains the name.

S. spectabile atropurpureum is a variety no rock garden should be without. Grown sometimes as a garden plant, it reaches a height of 10 to 12 inches. Both foliage and flowers are attractive, but it does not flower until September.

S. reflexum var. cristatum is very unique, and its appearance is that of a green cockscomb, four inches in height. I doubt whether this particular plant flowers at all. It would seem to be a monstrosity, having been named originally *monstrosum*. The peculiar habit of the plant constitutes its attraction.

A Sea-Girt Rock Garden

By MARGERY DUFF.

THE title is rather a misnomer for the "sea" is the tidal estuary of the Forth and the situation is a little rocky cove on the Fife side of the famous Bridge.

It is as close to the water as possible, the lower reaches being washed by the tide at least twice a year, and under the smaller boulders you can expect to find sandhoppers and other marine creatures. Such a setting, however natural and charming, brings its own peculiar problems, the two worst of these being summer drought and scorching salt winds.

Two grey leafed shrubs, *Santolina incana* and *Senecio Greyii*, are dotted about as wind breaks. They are kept clipped, and though during the winter their seaward side gets blasted black; after cutting back they break into full leaf again.

For colour effects the great families of Aubrietia, Phlox, Rock-rose, Dianthus and Campanula are used and all do well—especially Dianthus—grey leaves again. The Helianthemums are not pruned after flowering, the winter gales do that, but in the spring they are cut back to the first green bud.

Several maritime plants have established themselves, namely *Morisia hypogaea*, *Frankenia thymaeifolia*, *Silene maritima* (double), *Erodium corsicum*, etc.

Heaths do remarkably well; they get periodically blasted on the windward side but come up again smiling.

The lower reaches of the rock garden, within the tidal area, are turfed down close with *Armeria maritima* and very fine this Thrift looks both in mossy green and when it bursts into all shades from white to brick red.

Although the soil has no lime, most Saxifrages do well. *S. granulata* is a native. The tall, silvery species do not look like part of the landscape, as they do in

a limestone garden, and I regret we cannot grow the mossy varieties—lack of shade and moisture—for broad effects they are hard to beat, although rather scorned by specialists.

The rock is sea worn whinstone, not a favourite medium with Alpinists, but it has its points—it weathers nicely and grows a minute yellow and brown lichen. The dark tones of the stone throw all grey leaves and white flowers into high relief ; it splits and grows fissures. Nothing much lives in them but *Sempervivums* and *Harebells*. On the highest point of the cove the rocks have split into points and slabs showing the worst example of a “ Grave Yard ” arrangement—nature does not always design charming striated outcrops.

We tried a scree once, but found it would have to absorb yearly some tons of salt water, so planted it up with “ hearties.” All minute treasures are now kept in troughs in the paved rose garden, where they look exactly right.

A seal once came to call—not a visitor one ordinarily expects among Alpines ; he was lying basking on a big slab beside the Sea Pinks, and slipped off into the tide on my approach—I hope he will come again soon.

Plants and Problems

NOTE ON *DICENTRA PEREGRINA* VAR. *PUSILLA*.

[N Mrs Anley's interesting article on "Three Eastern Aristocrats" (Journal, page 91) she says of *Dicentra peregrina* var. *pusilla* that "neither imported nor home-grown seed has yet been known to germinate in this country." She does not mention that self-sown seed sometimes germinates—at least that is my experience. Some years ago I had a very healthy, free-flowering plant and one year some of the seed which fell on the surface of the pan germinated; from this I was able to pot up the seedlings. Previously I had failed to get germination when treating seed in the ordinary way. These seedlings flourished and grew into healthy little plants, until one day, entirely through my own fault, misfortune befel them, for I had put them to stand in water for a few minutes when, being suddenly called off, I forgot them. On my return I found that the compost in which they were growing was soaked, and from this they never recovered. The young plants soon succumbed and later, after a determined struggle for life, the parent plant followed suit—a perfect example of Mrs. Anley's dictum that "it can be definitely asserted that the normal cause of failure lies in over watering." I would, in conclusion, like to echo her words about the attractiveness of this little plant.

ALICE SILCOX.

DOUGLASIA LAEVIGATA.

The Douglasias have a bad name for being "difficult," but this is mainly the fault of the European *D. Vitaliana* which may grow, but will almost certainly not flower. The North American member of the genus *D. laevigata* is quite a different proposition, however, and is as generous in its return of blossom as the other is sparing.

The plant shown last year was given no particular care or treatment. It was planted on the top of a mound in the rock garden which was as fully exposed

as possible in the circumstances. The mound was cored with old bricks to which some of the old mortar inevitably adhered, and this may have had something to do with the richness of the flourish. It was planted in the early autumn of 1943 as a small plant, and lifted in full flower in time for the 1946 Shows. The mound was merely constructed from decent garden soil, not a special compost.

As a point of interest, on returning from the Show in Glasgow the pan was plunged in an ash frame and the dead flower-heads were cut off as they withered. At the time of writing (December 1946) it is looking healthy, and has made and ripened its season's new growth, a tribute to its fundamental robustness. H. T.

Report on Edinburgh and Glasgow Shows 1946

THE decision to hold Shows in Edinburgh (27th April) and in Glasgow (4th May) was more than justified, and although both Shows fell short of pre-war standards, especially as regards entries, some very fine plants were on view at both meetings.

At Edinburgh the trade was represented by Edrom Nurseries, Coldingham, by Castlehill Nurseries, Kippen, and by Mr. Clark, Haddington. The first named had some very fine Primulas, including the scarce *P. obtusifolia*; Castlehill Nurseries showed many fine plants of the dwarf Rhododendrons; while Mr. Clark had a nice lot of the more common rock plants which are always the backbone of a showy rock garden. In the competitive classes pride of place went to Major and Mrs. Walmsley, Garlieston, who annexed the K.C. Corsar Challenge trophy for six pans of Alpines, and in this group their exquisite specimen of *Phyllodoce nipponica* was awarded the George Forrest Medal for the most meritorious plant in the show. This plant received a First Class Certificate from the R.H.S., and its growers a Cultural Certificate, when it was exhibited in London in the week following our show. It was satisfying to see such fine specimens of Androsaces on view in Edinburgh; Mr. Curle's fine plant of *A. hirtella* was thickly studded with dainty white flowers against a perfect cushion of green; Mr. Corsar had a beautiful dome of *A. pyrenaica* thickly powdered with buds—it must have been a wonderful sight later, when in full flower. A very pleasing feature of the show was the water-colour and crayon drawings of plants executed and exhibited by Major and Mrs. Walmsley. The former were especially fine, delicately worked, and the colours particularly attractive. The crayon drawings showed skill in execution, but this medium does not lend itself to the delicacy demanded in flower studies, nor is the colour range sufficiently

extensive. It is hoped that these drawings will again be on view and under conditions in which they will be seen to their better advantage.

At the Glasgow show on 4th May, the trade was again represented by Castlehill Nurseries and by Mr. Clark, Haddington. A newcomer was Mr. Wintersgill, Thornleybank, Nr. Glasgow, the well-known landscape expert, who showed samples of composts, rockery stone, and various sorts of chips. In the competitive sections Glasgow fell short of Edinburgh both as regards the number of exhibits and their all-over quality. For his set of six rock plants, Mr. Archibald, Carnwarth, carried off the Dr. William Buchanan Memorial Rose Bowl, the exhibit including nice plants of *Anacyclus depressus* and the charming *Narcissus juncifolius*. The George Forrest Medal was awarded to Dr. Henry Tod, Seafield, Roslin, Midlothian, for a good plant of *Douglasia laevigata*, which had been one of the best plants at Edinburgh, and had improved with the keeping. The North American equivalent of the European *Androsaces*, the *Douglasias* are not of easy cultivation, and great credit is due to Dr. Tod for the best plant of *Douglasia* yet exhibited at any of the Club's shows.

Both shows were well attended, and judging by the enthusiasm shown, and the number of new members who enrolled, we may look forward with confidence to the success of the shows in 1947. G. F. LAURIE.

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