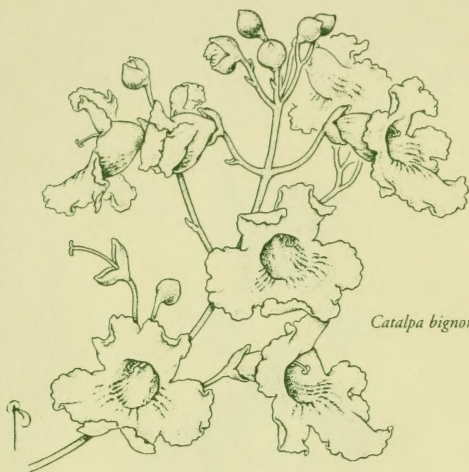


ALPINE
PLANTS

THE NEW YORK BOTANICAL GARDEN

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THE NEW YORK BOTANICAL GARDEN

CULTIVATION OF ALPINE PLANTS.



[Frontispiece.]

PART OF THE ROCKERY AT YORK NURSERIES.

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—
THE NEW YORK BOTANICAL GARDEN

Alpine Plants.

A PRACTICAL METHOD FOR
GROWING THE RARER AND MORE
DIFFICULT ALPINE FLOWERS.

By
W. A. CLARK, F.R.H.S.

With Illustrations from Photographs by
CLARENCE ELLIOTT.

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PREFACE.

I HAVE been induced to write this little work by the frequent requests which have been made to me for information as to how the rarer Alpines and those which, though not rare, are yet exacting in their requirements should be grown.

The book contains all necessary details as to soil, position, and drainage; the details are the result of long experience in the management of the very large collection of Alpine Plants cultivated in the York Nurseries.

I have tried to confine myself to such plants only as are difficult to establish. Every care has been taken to make the directions here given as clear as possible. I trust that, whatever the book's shortcomings may be, it will nevertheless prove useful to all interested in the culture of Alpine Plants.

I have, at the end of the book, carefully compiled lists of plants suitable for different positions, as it is often very difficult for beginners to make proper selections to suit

the aspect and soils of their rockery. These lists will enable anyone to make a choice at once, and, if the directions are carefully carried out, they need not despair of becoming successful cultivators.

There are many beautiful and rare Alpines well worth a place on the rockery which it is hopeless to attempt to grow without a knowledge of their requirements as to soils and position, but, given that knowledge, they may be confidently expected to succeed.

There is *one* thing I would like to impress very strongly on my readers—*every Alpine should be planted firmly*, and the soil or stone must be pressed close to the plant. Hundreds of plants die every year through neglect of this essential condition.

Many gardeners, as I have found from experience, are afraid to press the roots firmly lest the plant should be broken. This is the reason I have so often insisted on this point in the following pages.

W. A. CLARK, F.R.H.S.

THE NURSERIES,

YORK.

December, 1900.

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*(Some of the photos for these illustrations were taken at the
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ALPINE PLANTS.

INTRODUCTION.

MY object in writing this little treatise is simply to explain the method of (1) Planting, (2) the soils, and (3) the positions required by some of the rarer Alpines, several of which have been found very difficult to grow in many places.

Yet these plants are, for the most part, fairly easy of culture when proper soils and aspect are given. The account of such methods to be found in these pages will give much aid by diffusing a sound and practical knowledge of the requirements and management of rockeries.

I will here give a few reasons why care as to mixtures of soils and drainage proves so beneficial to plant life.

The reason I have so often alluded to drainage in this book perhaps needs a little

explanation. In the first place, good drainage enables the rain or other surface-water to descend more freely and escape more rapidly from the soil.

There is no doubt that the admission of frequently-renewed supplies of air into the soil is favourable to its fertility. When rain falls upon the surface it makes its way into the fissures, expelling the air which previously filled them ; when the rain ceases the water runs off by means of the drainage, and as it leaves the pores of the soil empty above it, the air follows and fills with a renewed supply the numerous cavities from which the descent of the water had driven it. Where the land remains full of water no such renewal of air can take place.

A word as to the temperature of the rain as it falls through the atmosphere.

If this be higher than that of the surface soil, the latter is *heated* by it ; and if the rain be copious and sink easily into the sub-soil, it will carry this warmth with it to the drainage. Thus it is that the drainage is most valuable, and the under-soil in well-drained places is warmer, because the evapor-

ation is less felt, as summer rains bring down warmth from above to add to their natural heat. The sun heats the surface of the soil, no doubt; yet, even in the hottest weather, its heat descends only a few inches, but when rain falls upon the warm surface and finds an easy descent (as it does on well-drained soils), the earth itself becomes warmer, and the heat is carried down to the under-soil. The roots of the plants receive the benefit, and general growth is stimulated thereby.

As a brief illustration: In the case of un-drained land, where the rain falls upon a surface which becomes baked and hard, it immediately runs over the surface, dissolving any soluble matter lying on it, and carries it into the nearest hole or on to the walks. In this manner rain thus injures rather than benefits the land.

But it is quite another matter if the rain can penetrate where it falls; then, whatever it dissolves it carries down to the roots of the plants and distributes any saline matters which have a tendency to rise to the surface, thus promoting growth by bringing

food within reach of the plants. If the drainage is good, no substances which are injurious to the roots of the plants can collect on the sub-soil.

These noxious matters the rain washes away in the draining, and leaves room for the descent of the roots into wholesome soil.

It may be argued that drainage in hot, dry soil would render drier a soil already parched up. So far as my own experience goes, this is not the case.

A little judgment must be used in cases of this sort, and instead of the drainage being, say, 12in. from the surface, as in clayey sub-soil, in sandy dry places it must be deepened so that the roots can penetrate further. They will thus be rendered more independent of the surface moisture.

There is no doubt that the soil shrinks under the influence of the heat in proportion to the quantity of clay or peat it contains. Sandy soil diminishes very little in bulk by dryness. Thus, in heavy soils in dry weather the roots are very much compressed and the air excluded from them, and the plants are

placed in a condition unfavourable to their growth.

We cannot fail to perceive from these facts how much depends on how the proper proportions of earthy and vegetable constituents are mixed together.

Hence the value of proper mixtures (referred to in the book) will be very apparent, as thus the roots are preserved from compression and a free access of air is permitted.

Thus it is that different plants want different soil and treatment (referred to later), and each plant grows well where its wants can be fully and most easily supplied; as they do not possess the power to move from place to place independently, we must by artificial means minister to their most important needs.

Here I may add a word about top-dressing rockeries and how it should be done.

As I have previously mentioned, the access of air is most essential, therefore, before top-dressing is commenced, the whole surface should be worked up with a fork, so as to lighten the soil and give free access of air; then the top-dressing may be commenced, taking care to work backwards (so

as not to tread upon the newly-relieved ground).

The top-dressing should be done in the autumn, and should be preceded, as I have said above, by forking up.

A great deal more might be said on the subject of drainage and soils, but time and space will not allow of it here.

At the end of the book will be found a list of the most useful Alpines for different positions, such as full sun, partial shade, &c. The plants for limestone and sandstone rockeries are also there catalogued.





[Rev. W. Travis, Ripley.

ERITRICHUM NANUM.

Photo by]

CULTIVATION OF RARE ALPINE PLANTS.

ACANTHOLIMON VENUSTUM (*Cilicia*). A rare little Alpine, and one which should be grown on every rockery where it can be exposed to the full heat of the sun; a plant well adapted for the dry chinks of rock-work. A composition of limestone, loam, and sand in equal parts suits it best. It requires to be kept fairly dry during the winter. Attention must be given to it in the early spring (in case the frost has disturbed it during winter), and it must be pressed well back into its place again.

ACHILLEA HUTERI. A most useful plant for the rockery; with its bright green glossy foliage, and pure white flowers, it likes a sunny part of the rockery and grows well in common sandy loam. Care should be taken (once or twice in the season) to top-dress, otherwise it has a tendency to grow loose, and the wind blows off the young growths. *A. rupestris*

(*South Italy*). This charming and early-flowering species is of very easy cultivation. It does well facing full south, and, like the preceding, requires sandy soil, but if a little limestone could be added the plant would greatly benefit thereby. This species has a habit of rusting and the foliage turning brown in the early part of the autumn, and is often thought to be dead or in a dying state. To prevent this it must be top-dressed, as soon as it has done flowering, with a mixture of grit and leaf-mould worked among the shoots. It will begin to grow freely, and soon repay the labour expended.

ACIPHYLLA SQUARROSA (*New Zealand*). This is a very quaint and interesting plant, and very useful for large rockeries where it can be planted on an elevated place between stones. Where this can be carried out it is a most imposing feature, with its long, spiny foliage. It must be kept free from any damp during the winter season; full south position, sheltered from the north and east. When planted it should be tilted on one side, so that the rain does not rest in the axils of

the leaves. Limestone or rough grit, with one part loam added, suits it well.

ADONIS AMURENSIS (*Manchuria*). There is nothing more charming than to look upon a mass of golden yellow in the months of February and March, just before the daffodils or yellow Alyssum appear. In the above plant we have that want supplied. It resembles *A. pyrenaica* in flower and growth, the only difference being that *amurensis* flowers in February and March. It is of the easiest culture—anyone who grows *A. vernalis* will have no difficulty with the other. Good deep, sandy loam and a south aspect; the place well drained, and a little top-dressing given every autumn. These useful plants make a succession of blooms from February until June: first, *A. amurensis*; second, *A. vernalis*; last, *A. pyrenaica*. It is as well to take the plants up and divide every third or fourth year; this operation should always be done in the early spring in the case of *pyrenaica* and *vernalis*. *Amurensis* should be divided and replanted in October.

ÆTHIONEMA CORDIFOLIUM, GRANDIFLORUM, &c. (*Pyrenees and Southern Switzer-*

land). These plants do not make the headway in gardens that one would like to see. They are of very easy culture and purely rock, sun-loving plants, and should be grown between stones on an elevated place looking full south in a mixture of rough limestone and loam in equal parts. Pressure should be brought to bear on the roots by pressing the stones close together, so as to make the plant as firm as possible, leaving plenty of room for the roots to descend.

ALLIUM ACUTANGULUM (*Western Switzerland and Pyrenees*) and PEDEMONTANUM are both limestone-loving plants. Where limestone cannot be had, strong clayey soil should be mixed with grit-stone. If planted on the level part of the rock garden, the place should be well drained. A full south position suits them best. There are several other species worth growing on the rockery which do well in any ordinary soil and in any aspect.

ALSINE ROSANI, A. BIFLORA (a rare species), TENUIFOLIA, &c. These belong chiefly to Switzerland and the Pyrenees, and require a light sandy, gritty soil, in sunny positions, in crevices of rockwork or a dry sandy bank.

The compost should be as poor as possible, so as not to encourage too much growth, and prevent ripening sufficiently to withstand the damp winter. They are nearly all sun-loving plants, with the exception of one—*A. stricta*—which requires a damp, peaty soil, and likes the shady side of a bog.

ALYSSUM ALPESTRE (*Pyrenees*): The Alyssums are all mostly of easy culture. *Pyrenaicum* and *alpestre* require a little more care and attention, especially the former. It is more of a limestone plant, requiring a warm, dry crevice on the south side of a rockery, wedged tightly between stones. This wants looking carefully to in the spring, in case the soil has washed away from the plant during winter and left it bare. If this is not attended to it will soon die, as it does not root very deeply, and therefore has no chance to withstand the hot sun. A little top-dressing of fine limestone and loam should be used. The other species grow freely in any ordinary loam.

ANDROMEDA FASTIGIATA. The Andromedas are all very interesting. *Fastigiata*, which is perhaps most rare and the least

seen in gardens, should have a place on every rockery where rare Alpines are grown. It is no doubt rather difficult to grow unless in the right position and soil; use a compost of leaf-mould, white sand, and peat (equal proportions). Make the place 18in. deep, with good drainage, in a partially shady spot; mix the compost well together before planting; make the plants perfectly firm, and after the plant is in its home cover the surface with fine white sand, and give a good watering, so as to settle the sand well among the shoots. Great care must be taken to top-dress twice a year—spring and autumn—with sand, leaf-mould, and a little fine peat. Spread out the young growths over the surface, and peg them down, then add the above compost, cover the young growths to within 2in. or 3in. of their tips, and when this is done give a good watering as before, and the young roots will soon make headway among the freshly-added soil, and make provision for the following season's blooms.

A. tetragona requires more shade; but a similar compost should be used and the top-dressing also carried out, for this is the main-

stay of both these plants. They will need abundance of water during the summer.

ANDROSACE. There is no doubt that these are a very beautiful and interesting family, and most of them of very easy culture. A few of the rarer species require special soil and position. *A. carnea* and *A. c. eximia*, *A. ciliata*, *A. villosa*, *A. Wulfeniana*, *A. Vitaliana*. The above require a south-west aspect, where they can be shaded from the sun during mid-day; sandy loam and grit, equal parts. They do well planted on the flat part of the rockery, where the soil cannot be so easily washed away from the plants. A top-dressing of river sand may be used. In the early spring the plants will greatly benefit by it, and will seed freely, the seed germinating among the sand (especially *carnea* and *c. eximia*); quite little carpets will thus be formed in the course of a few years.

A. foliosa (*W. Himalayas*) is a more robust species, requiring a well-drained position, facing full south, with limestone and good loam. *A. lanuginosa* (*Himalayas*) and *A. sarmentosa*. These two require grit, loam, and sand—two parts loam, one grit, one sand—

mixed well together in a well-drained part facing full south, if possible, just in front of a stone, so that in the wet winter season the stone may be used as a protection for the plants from rain and snow (especially *sarmentosa*), for if the snow is allowed to be on the foliage too long it will rot out the crowns, on account of the woolly nature of the foliage. A top-dressing of compost should be used in the early autumn, so as to enable the young runners to root freely; if in an exposed position the young rosettes should be pegged down, to prevent the wind from blowing them about. *A. lanuginosa* slightly differs from the above, as it does not root from the young shoots, and is better adapted for hanging over stones. If planted just behind a stone the young growths will hang down the front part of the rock and bloom freely. This plant may be pruned back annually, as it sends out young growths from the base every year. The old shoots should be cut away, say, every second year; in fact, they become very straggly if left more than two years, and do not flower so freely. This also should be planted so that the rain can be



ANDROSACE LANUGINOSA.

prevented from lodging near it in the winter.

Now we come to a section that requires rather special treatment, such as *A. helvetica*. This must be wedged tightly between stones (limestone preferred) well elevated and facing south. Leave plenty of room behind the plant in the chink of rock—to hold the soil for its roots—and let it have a plentiful supply of water during early summer; but avoid watering over the face of the plant as much as possible, or the foliage will turn quite brown, and the little rosettes will be destroyed.

A. argentea (Syn. *imbricata*) (*Pyrenees*). The treatment of this species differs from the preceding one. It requires a sunny position and a mixture of leaf-mould, sand, and fibrous loam in equal portions. It does not need to be wedged between stones, but should have a stone fixed behind it, so as to take away any moisture that may lodge near it. Small pieces of sandstone worked around the plants absorb any moisture that may rise which the plant does not require. A top-dressing of stones once or twice in the season is very beneficial. It keeps the plants warm in winter and

retains the moisture during the hot sunshine. *A. pyrenaica* requires similar treatment to *helvetica*. There are several other species well worth growing and of comparatively easy culture. *Coronopifolia* is a most useful biennial. If a little seed is scattered on the sunny side of the rock it will grow, and flower very freely and seed each year, and prove a nice companion for *Erinus alpinus*.

ANEMONE FANNINI (*Natal*). This plant is very distinct in habit, and perhaps should be classed more as a herbaceous plant, although for large rockeries it is very imposing (where a background is required), the foliage being so distinct and robust. It requires a rather shady position in good deep loam and sand; a little dry bracken should be placed over the crowns in winter. *A. pratensis* (*Germany*) is a very useful addition for the rock garden. It is quite as easy of culture as *A. Pulsatilla*; a sunny bank, sheltered from the north, suits it best on account of its early flowering. If planted in an exposed place the flowers are often dried up by the late frosts and cold winds; deep, sandy loam. *A. vernalis* (*Switzerland*)

requires a south position in deep, sandy loam; should be top-dressed just after flowering, as it makes surface roots, and will often grow out of the ground unless provision is made for the young roots by top-dressing.

ANTENNARIAS. These are very useful plants, as they will do well in almost any position, and are suitable for every rockery where rare plants are not required, doing well in any ordinary garden loam.

ANTHEMIS AIZOON (*N. Greece*). Sometimes classed (though wrongly) as an annual. Care should be taken to plant on a very dry part of the rockery, either between stones or on a sloping bank where it can be kept dry in the winter. A top-dressing every autumn of sandstone worked among the foliage is very essential to keep it from damping. *A. Biebersteiniana*. A more robust plant and of very easy culture, growing well in almost any position, in deep sandy loam and leaf-mould, with a little grit-stone added.

ANTHYLLIS MONTANA and MONTANA RUBRA (*Alps*). Two very useful plants for dry sunny banks or between the crevices of the rocks;

limestone and good rough loam. They will do in sandstone if limestone cannot be obtained.

ANTIRRHINUM GLUTINOSUM (MOLLE) (*Spain*). *A. SEMPERVIRENS*. Two most useful plants for dry crevices on ledges where the rain cannot get. It will be found that these plants do extra well and will grow where nothing else will live. The drier the position the better the plants will look. *A. Asarina* is also very useful, and will grow on any dry part of the rock or rock garden; it is more hardy than the above two species. If a little seed is put into small holes in the stone it will germinate, and the plants will hang down the rock; if the seed is placed in the crevices on the south side of an old wall it will soon cover the wall with plants; or again, if a hole is made in the wall and a plant inserted, it will soon scatter its seed on the other parts of the wall, where it will take root and grow freely.

APHYLLANTHES MONSPELIENSIS (*South of France*). This is a most interesting rush-like plant, and a good addition to the edge of the bog garden. It requires peat, sand, and loam in equal parts, and a position

where the roots can be comparatively dry in winter. A full south position is necessary if on a damp bottom, but if on the dry side of the bog garden a little shade is needed.

ARABIS. All interesting little plants of comparatively easy culture, and will do well in any sunny place; sandy loam. *A. Halleri* requires a little limestone mixed with loam. This species should be carefully top-dressed in the spring. *A. Androsace* does well in the chinks of the rockery, full south, where it can be fairly dry in winter.

ARENARIA ACULEATA is about the only one which necessitates special treatment and place. It requires planting between stones on a sunny, dry part of the rockery, and must be wedged tightly between two stones and kept dry in winter. It grows well with *Acantholimon venustum*, but requires sandstone.

A. Huteri (Southern Tyrol). A most charming little Alpine, and grows freely in sandy loam, with a south-west aspect, on the level part of the rock garden. A top-dressing of sand and leaf-mould twice a year is most beneficial, as it enables the young shoots to

root freely. *A. longifolia* resembles a fine grass and requires a little more shady position on the dry side of the bog garden. It is almost evergreen, and looks well when out of flower.

ARCTOSTAPHYLOS ALPINA (*Alps and Pyrenees*). This is a very useful plant for the edge of the small bog garden. It likes shade, but no water must stand near the roots in winter; peat, leaf-mould, and loam in equal parts. Plant firmly, and top-dress in the autumn. Care should be taken to peg down the shoots, so as to prevent the wind from breaking them off, as they are very brittle. There are other species which do well on the shady side of the rockery, and are of much easier culture; sandy loam and peat. These root well from layers.

ARMERIA CÆSPITOSA or JUNIPERINA. A rare little plant, but of very easy culture, doing equally well on the flat part of the rockery or wedged tightly between stones in the full sun. If planted on the level part it would be better to place a stone just behind, to keep it firm until established. Deep sandy loam and grit—two parts grit

and sand to one part loam are required. Should the foliage become brown at any time, take the plant out as soon as possible and examine the tap root; where a small white grub may be found in the heart of the root, the plant must be removed to some other part of the rockery, or if put back in the same place, add fresh loam, taking care that the old is taken away and the grubs destroyed. *A. setacea* makes a nice companion for the above, and does well in any poor loam, with a south aspect.

ARTEMISIAS. The smaller species from high altitudes, such as *A. glacialis*, *A. pedemontana*, and *A. spicata*, require special care, and should be planted on the high part of the rockery in a mixture of limestone and rough loam, and in a warm sunny place. If planted where a stone can overhang they are protected from the damp from which they suffer in winter. *A. Baumgarteni* is of later introduction, and should be planted between the chinks of stone facing full south, and where it can be perfectly dry in winter. This is more a foliage plant, its bright silvery leafage contrasting well with the dark stone, limestone, and loam.

ASPARAGUS ACUTIFOLIUS. This plant looks exceedingly graceful hanging from the rocks high up; plant in good loam, sand, and leaf-mould. The place where it is to be planted should be made of the above compost, 18in. deep, so that the roots can get well down. No manure must be used with the soil. It is an evergreen, resembling somewhat a graceful little pine; protect from north and east winds if possible.

ASTER ALPINUS AND VARIETIES are all very easy of culture, any ordinary garden soil suiting them well. Care should be taken to top-dress once or twice a year, early spring being the most suitable time. If this is not done they grow right out of the ground and the stems become quite bare, in most cases getting broken off by the wind. By using the top-dressing this is prevented and they will keep good for years.

ASTRAGALUS ALPINUS requires a very hot sunny place with plenty of stones and poor soil; mix together two parts stones and one soil. *A. argenteus* requires deep loam and limestone in a well-drained position, facing full south. Keep as dry as possible in winter. *A. Tragacantha* will do well planted high up

among the rocks, wedged tightly and kept as dry as possible, taking care to leave plenty of room behind for the tap roots to get well down.

AUBRIETIAS are all well known, and will thrive in any ordinary garden soil, provided it is not too rich. They like a south aspect, and planted between the rocks they form pretty hanging plants. If they become straggling the old growths may be cut away and they will spring from the base every year.

AZALEA PROCUMBENS. This sometimes proves a rather tiresome plant to some growers. It is often found to damp off during the winter, but if planted in a suitable place it is quite easy to keep. It should have a south-east aspect, where it can be sheltered from the mid-day sun either by a tree or stone. Plant on a sloping bank. The place should be well drained. A compost of hard peat, two parts; white sand, one part; a little leaf-mould may be added and a small portion of rough loam. The compost should be put into a sieve and all the fine taken out before it is filled into the place where you intend to plant the Azalea. Make it very firm by

pressing with the hand, add a covering of white sand, and then give a good watering. A top-dressing of sand and fine peat should be given every autumn and spring.

BRYANTHUS ERECTUS (*Siberia*). To ensure success with this rare little shrub it should be grown in hard, fibrous peat and white sand in partial shade, facing south-west, and should have the shelter of a rock on the north side when the plant becomes strong; peg it down to the ground and fill in among the shoots with a compost of the above, taking care not to bury any of the young growths. Leave the ends of each shoot 2in. or 3in. above the top-dressing; thus it will root freely and form a nice compact bush. Care should be taken to give it plenty of water in the spring and early summer, to ensure good wood for the following years. A little protection afforded by a branch or bracken is essential in any hard weather.

CALANDRINIA UMBELLATA should be grown on every rockery; the profusion of crimson flowers during the summer months makes it

a most valuable addition. It requires a very dry bank in poor gritty soil. A little seed scattered among the rocks in the spring will give the desired effect.

CAMPANULA CENISIA (*Switzerland ; Tyrol*).

This rare little Alpine wants special treatment until established. A mixture of sand, leaf-mould, and loam in equal parts suits it (grit added helps to relieve it from moisture). A well-drained part, with a south aspect and a flat mound, suits it very well (that is, where it is elevated above the walk). It should be planted as near the walk as possible, where it can be easily seen. Care should be taken that the roots of other plants growing near do not run among the young growths, for if this is allowed it will soon die out. A top-dressing twice a year should be given—spring and autumn. The autumn top-dressing should be composed of grit only, so as to absorb any moisture that may rest upon it during the winter, and also to prevent snails from becoming too well acquainted with the young shoots in spring. *C. Allioni* is of much easier culture, requiring a south-west aspect. This should be planted in

three parts sand and one part loam in a well-drained place. As the roots run freely underground it requires something light and easy of penetration. The sand keeps it dry in winter and helps to maintain moisture in summer. Gradually, as the plant gains strength, it will begin to occupy other soil near by. When you notice this escape from the original place care should be taken to add more sand to the soil where you see the young shoots coming through. If this course is adopted you will be able to keep it in good health for many years without much trouble.

Campanula mirabilis is more suitable for the back part of the rockery. It requires deep loam and sand, in an elevated position, facing south-west. Space should be left for the leaves to expand—that is, do not plant small Alpines near, or they will be smothered by the leaves of the *Campanula*, which extend over 1 ft. in length in the season. *C. Zoysii* (*Carniola*). Another rare Alpine species, and not much seen on rockeries. This species is of much easier culture than *C. cenisia*, though requiring almost the same treatment and position. Top-dress carefully twice a year. It should

be fully exposed, so that no drops from overhanging branches can fall on the place. If a drip be allowed to fall near, the plant will die off at once. There are many more beautiful little species, but they all do well in ordinary gritty loam, chiefly on the south side. In all cases the places should be well drained for the smaller species.

CERASTIUM GRANDIFLORUM (*E. Europe*). I mention this species simply because it is a most useful plant for a dry, dark corner of the rockery, where it can hang down a crevice with its bright silvery foliage and large pure white flowers in bright contrast with the dark corner. If planted on the north side it should be well elevated, so as to be fairly dry during winter. It requires poor gritty soil.

CHRYSANTHEMUM ALPINUM is of very easy culture and useful for the Alpine garden. It is suited by a well-drained south position, with a compost of sand and loam in equal parts. It likes a sloping bank. This is a plant which often gets lost, while a little care in top-dressing once a year in the early spring would save it. Like *Aster alpinus*, it grows out of the ground, and when the dry winds come

all the young roots perish. When the dressing is put on, the plant should be pressed well back into the earth, so as to make it firm.

CODONOPSIS OVATA (*Himalayas*). For an elevated part of the rockery this plant is valuable; deep sandy loam, in a well-drained place behind a stone is a good position for it, where it can hang over the front part when in bloom, so that the flower may be looked into from below, as the beauty of this flower is inside, and you lose it by looking down upon the flower.

COLCHICUM SIBTHORPII. I did not intend to treat on bulbs, but there are two or three which I think worthy of mention. *C. Sibthorpii* is about the first to make its appearance in the autumn when the rockery is dull and void of any flowers, followed by *C. speciosum atrorubens*. I may also mention a pure white *speciosum* which will be in the market very soon. It originated here at the York Nurseries, and will be a great boon to florists as well as the Alpine gardener. Each petal measures from $2\frac{1}{2}$ in. to 3 in. long, and is much better than a White Tulip. F.C.C., R.H.S. They all do well in good deep, rich



GNAPHALIUM LEONTOPODIUM (EDELWEISS).

loam, with a south aspect, so that the bulbs can get well ripened during the summer.

CONANDRON RAMONDIoidES (*Japan*). This is quite a new introduction, and requires rather careful handling, in the resting season especially, which is from October to February. If a place could be arranged on the ledge of a rock where the water could only get to the roots and run clear away, this position would suit it well. If this cannot be arranged a sloping bank should be provided, with stones behind—with the stones so placed as to carry the water away from the crowns of the plants, but at the same time divert its course to the roots, which can be managed very well by using a little judgment in the arrangement of the stones. As soon as the autumn comes a stone should be placed over the plants, so as to prevent any snow resting on the crowns, and left until February. A north aspect suits it best; failing this it should be planted so that the sun does not reach the leaves—they are so very glossy and succulent that the sun soon turns them brown. A compost of fibrous peat and loam with a little sand added. All

the fine should be taken out of the peat and loam before the sand is applied, then mix well together. Care should be taken that no dead leaves are left on the crowns. These should be removed as soon as they fall, which they will do in October or November. (They must not be broken away from the plant.) To protect the crowns during winter add a little fibrous peat around the plants as they form young roots on the surface, and the peat will be found beneficial. It makes a good companion for *Ramondia pyrenaica*. It flowered here very freely in pots last year.

COPROSMA ACEROSA (*New Zealand*). A very curious straggling, almost evergreen plant, with beautiful blue transparent oval berries which hang on the plant nearly all the year ; it is of very easy culture. If planted high up among the rocks it gives a very fine effect. It is a strong rooting plant. Room must be left among the stones so that it can establish itself. Aspect, full south, and it should be sheltered from the north winds. Compost of gritty soil and leaf-mould.

CORONILLAS. Chiefly from France and the South of Europe, and well known ; *C. iberica* and *minima* being two of the best

species, especially *C. iberica*. I do not know any plant which does so well in the rock garden where quick cover is required. It will do well in any aspect, if planted between stones; a mixture of rough loam and sand with a little broken limestone or sandstone is required. *C. minima* is better adapted for a sunny place, and likes a warm sandy soil. *C. vaginalis* will do in a similar position to *minima*. A little grit may be added to the soil.

CORTUSA MATTHIOLI (*Swiss Alps*) and C. M. GRANDIFLORA are both suitable for the edge of the bog garden or any dampish place where a little shade can be obtained, Peat, loam, and leaf-mould. *C. pubens* and *villosa* (*Transylvania*). These require a little more care; they are well suited for a small garden close to the edge of a path, and should be kept dry during winter. They should be looked to in the early spring, as the crowns will have risen out of the ground. These must be pressed firmly back into their places and a little top-dressing of peaty loam added.

CYANANTHUS LOBATUS (*Himalayas*). C. INFLATUS (*Sikhim*). These are very beautiful

plants when well grown, but one does not often see them in the rock garden. No doubt they are often lost during the winter. A nice dry situation south-east should be chosen; compost, leaf-mould and sand, with a little grit and rough loam added (when I say rough loam, I mean the loam should be put through a sieve, all the fine taken away, and nothing but what remains in the riddle used). Rare Alpines are often put into the ground without the slightest regard as to aspect or compost. No doubt this accounts for so many of the rare Alpines being lost. If established plants are procured from a trustworthy nursery, the soil they are grown in should be a good guide as to what they require, although at all times this is not practicable, as sometimes the plants get overturned in transit, and other soil is added to fill the pot. Great judgment is required in the first instance in planting all rare Alpines. They do remarkably well between stones on the top of a knoll.

DAPHNE BLAGAYANA (*Eastern Europe*).
This beautiful prostrate species requires very

little care. Plant in any border on rockery or on the side of the bog garden where it is elevated above the water line. Compost of leaf-mould, sand, and peat in equal parts. It prefers a rather shady place. To ensure success the young growths must be pegged down once a year, the month of August being the most suitable time. Top-dress with the above compost, just leaving out the ends of the shoots. The layers will root freely into the compost, and thus form a nice compact bush. *D. rupestris*. A rare little Alpine and a little difficult to grow. This is perhaps the reason that we do not often see it in gardens. It is a beautiful little plant and well worth growing. Great care should be taken in planting. It requires a hard fibrous peat and white sand. The peat should be torn into pieces with the hand, and the fine taken out before the sand is added. The aspect should be south-west, where shade can be given during the middle of the day; no trees must overhang the place to cause a drip. Plant very firmly, and work sand and peat among the shoots after planting. A top-dressing should also be given every autumn, as the soil gradually

washes away from the stems, leaving them bare. I believe if the above conditions are carried out no one will have much difficulty in growing it. I have proved this from personal experience. *D. Cneorum* is a very good plant for the south-east side of the rockery in a slightly elevated sloping position. Good loam and sand is needed, and a little peat may be added if the soil is very heavy. They all require a well-drained place. *D. fioniana* (*South Europe*) is more adapted for the border and for larger rockeries where it can be planted in the background. Use good loam and peat. It will do well in partially shady places.

DIANTHUS ALPINUS. A well-known plant, requiring a south aspect sheltered from the mid-day sun. Good fibrous loam and grit, with a little leaf-mould—two parts loam, one leaf-mould, one grit. A top-dressing of leaf-mould and sand should be worked among the young growths once or twice a year. The young growths do not root into the ground as some species do. The young shoots should be lifted carefully up and the dressing put under each shoot, taking care first to leave

out the tips ; if this is done the plant will greatly benefit by it, and soon become a fine clump. *D. callizonus* (*Transylvania*) differs from the above in growth and habits. This species requires a light, sandy soil and a full south aspect on the flat part of the rockery. It forms suckers and runs in the ground. It requires careful top-dressing in the spring. *D. Freynii*. This is probably the smallest *Dianthus* we have, but a very interesting variety on account of its small, bright flowers and neat, compact habit ; this thrives best on a dry, sandy bank, and, like the others, needs top-dressing once or twice a year. Fine sandy loam and good drainage are most essential. Spring is the best time for dividing or replanting. *D. glacialis* (*Alps of Europe*) is perhaps the rarest and, I may say, the most difficult to grow. No doubt a really good clump of this would be hard to find. I find it grows best in a southwest aspect on a sloping bank, with a compost of loam, leaf-mould, and sand ; just enough sand should be added to keep the soil open. The plant should be dressed once or twice a year, or as often as the soil

washes away from it. Put the dressing carefully among the young growths, and in the autumn the top-dressing should be composed nearly all of grit, with the fine sifted out so that it will absorb any moisture that may rest on or near the plant during the damp season, November and December being the worst months. A sharp look-out must be kept for snails in the spring, as they are particularly fond of this species. There are many other species and varieties of *Dianthus*, but all are of comparatively easy culture in well-drained, sunny places.

DRABA MAWEANA or *MAWII* (*Spain*) I may take as the most difficult species to grow and flower. It requires to be kept in a dry place during winter, as it does not flower quite so early as some of the species; a little limestone added to the soil is very beneficial. Plant tightly between chinks of rock on the south side where it will get full sun. The other species do well on any part of the rockery, or on a sandy bank, if well drained.

DRYAS DRUMMONDII (*N. America*). This requires a moist, peaty loam and is well

adapted for the edge of the bog. It will grow well in full sun if planted on a damp bottom. If on the dry side of the bog a little shade is required. *D. octopetala* is a more sun-loving plant and does well on the south side of rockery in gritty loam and sand. *D. tenella* is better adapted for smaller rockeries and can be planted close to the path in shade; peat, loam, and grit in equal parts.

EDRAIANTHUS or WAHLENBERGIA. This beautiful class of plants does not seem to make headway as they might do, considering they are all of comparatively easy culture. *E. Pumilio* and *E. pumiliorum* require to be planted in the fissures of rock-work facing full south, leaving a nice space behind, so that the young roots can be well protected. They are of a very tender, silky nature, and if ample space is left behind and filled in with grit and a little loam, the roots cling to the sides and gather all the moisture they require. Make very firm between the stones. Care must be taken to see that the soil does not get washed away from the plants and leave the roots loose; compost: grit, loam, and sand in equal parts.

E. serpyllifolius (*Dalmatia*) requires a slightly different treatment on account of its Arenaria-like foliage and growth. Plant on a dry south bank, just at the bottom of a rock where it can spread over the surface. It does not require to be planted between stones unless the part is on a level with the walks and in a damp situation. If this is the case, plant between stones, filling in with grit and loam in equal parts, placing the stones so as to allow the plant to creep over their surface. Use a little leaf-mould and sand as a top-dressing in the spring to enable the young shoots to work into the soil. There are a few other species which are worth growing and easy of culture in sunny places.

EPIGÆA REPENS (*N. America*). A plant you very seldom find in the Alpine garden, although there are many places there where it would do well. It should be grown in a shady nook on the north side, and must be sheltered from the north wind by a rock or shrub. It does not require sun. A compost of hard fibrous peat, leaf-mould, and loam in equal parts, with a small portion of

silver sand, mixed through the whole plant suits it well. Firmly peg down all the shoots, so as to enable it to root from the growths. Cover in the early spring with a top-dressing of leaf-mould, taking care not to bury the leaves, and water freely in summer. It will do well on the shady side of a bog where it is not too damp in winter. The pegging and top-dressing must not be neglected or it will soon die out.

ERITRICHIUM NANUM (*Alps*). The great difficulty in growing this Alpine gem may be greatly reduced by following the instructions here laid down. First select a nice sunny fissure on the rockery (not too high up, but where it can be close under the eye) where you can give moisture during the growing season without having to damp the foliage or face of the plant, and where it can be kept perfectly dry from September until January. During these months it is quite dormant and does not start to grow until towards the end of January; but no water must be given, as there will be quite enough moisture to moisten the roots for fully a month after showing signs of life. *Instructions for planting*.—Compost of

hard fibrous peat, leaf-mould, and grit in equal parts ; this should be broken up fine and put through a $\frac{1}{4}$ in. sieve ; then use a fine sieve to take out the dust. Add a little sand to what remains in the sieve and mix well together. This makes a capital compost and suits it better than anything I have tried. The roots are almost like silk and require something fine to work into. A stone should be laid in a slanting position, inclining downwards towards the bank ; place a layer of compost on the stone, then lay the plant on, adding more compost to cover the roots well over. Then place on the top stone, pressing firmly down ; care should be taken not to bring the stone over the plant—just leave room for the soil to show between the stone and plant, taking care to leave the neck of the plant free, adding more compost behind the stones ; then add another flat stone on the top half ft. from the plant. This may be allowed to hang over a few inches. The top stone should be so arranged as to carry the water direct to the roots of the plant ; with a little care this can be managed so that no water need ever

be used on the face of the plant. In this manner a dry atmosphere will always be maintained for the foliage, while the roots will have ample moisture from behind. A stone can be placed over the whole plant in the autumn and left until January, and then it can be removed when the plant requires water again. A little top-dressing should be given in the spring. I have grown here under similar conditions and had in full flower from thirty to forty plants in the month of May. If the above instructions are carried out no one need despair of growing this beautiful little gem.

ERODIUMS are nearly all of fairly easy culture, requiring a well-drained sunny position and a good deep gritty loam.

E. guttatum is rather more inclined for the rocks and will do well between stones. A little limestone should be added to the compost. *E. Reichardi* requires a more sheltered place, where it can be shaded from the mid-day sun and kept fairly dry in winter.

ERYSIMUM PUMILUM. The true form of this interesting little Alpine is very rare and requires special care. It should be wedged

tightly between limestone in a hot, dry place ; strong loam should be added to the limestone. No sand or leaf-mould must be used. This is the only species that requires special care. The others grow well in any ordinary loam and sunny place.

EURYBIA GUNNIANA. Purely a rock plant of easy culture, requiring a very dry place. Plant in rubble between stones, full south ; little or no soil need be used. The principal thing is to keep it as dry and as poor as possible. It should be well protected from the north and east winds. It requires knifing well back every year just after it has done flowering, so as to keep the plant compact ; the sheets of snow-like blossoms in June and July are beautiful. *E. ilicifolia* requires the same treatment. It flowers a little later and is a more hardy plant, but not quite so free in flowers. In very hard weather a branch should be thrown over *E. Gunniana*.

GALAX APHYLLA (*N. America*). A charming little bog plant ; a shady position, peat, leaf-mould, and loam in equal parts ; top-dress in the autumn.

ARNERIA CESPITOSA.



GAULTHERIA NUMMULARIÆFOLIA. Another moist, shade-loving plant. It does well on the north side of a rockery, where it can hang down or creep over a rocky bank close to the water's edge. Peat, loam, and grit in equal parts. It requires top-dressing in the spring. The compost needs to be well worked among the young growths. In this it will root freely and soon form nice cushions. The foliage is much nicer if planted where the sun cannot reach it, as the sun turns the foliage quite brown.

GENTIANA BAVARICA and *VERNA*. These require rather special treatment to ensure success. The position which suits them best is full south, but care must be taken in this instance to have a moist, sandy, loamy bottom and where they can be watered every day during the summer months. If this watering cannot be done, then a more shady place must be chosen; the bed must be made level or concave, so that the water does not run off too quickly; although they like this moisture, the bed must be well drained. Use a mixture of rich loam and fine white sand—two parts loam, one part sand, mixed well

together. After the drainage (say 3in.) has been put into the bed, fill in with the mixed compost, 4in. to 6in. deep, tread firmly down, then add 1in. of white sand, spreading it evenly over the surface of the bed. Tread all over again to make as firm as possible. Level the surface, then start to plant, taking care that the sand goes well down to the roots. As you put each plant in its place, press it as firmly as possible and cover it almost out of sight. After the plants are all in, dress the surface again with a thin covering of sand. Water with a fine rose and then leave for a few days to settle. If very hot a few branches may be laid over the bed, just to keep the sun from drying the ground too soon; they may remain on for a week, for by this time the plants will have got over their check and the branches may be removed with safety. A good watering every third morning will be needed during the hot weather. A great many people complain of losing their *Gentianas*, especially *verna* and *bavarica*, after they have seen them flower but once. The reason of this is very easily explained. When the plants

are sent from a nursery they are generally set with flower-buds. (Of course, it is quite natural for the buds to develop under almost any condition the first year). After the plants have been received, they are planted in some unfavourable position (it is remarkable in what unsuitable positions I have seen *Gentiana verna* planted—positions in which I should never expect anything to grow). They flower because they cannot do anything else; but they have no chance to root, because the place and soil are not what they require. After they have done flowering, the stems are all that are left to be seen; the leaves will all have dried up. The flower-stems are very fine and the wind has a great power over them, and soon twists and breaks them off. Of course, in the meadows and parts where they grow wild there is always grass to support the stems. To prevent this blowing about and breaking off, a top-dressing of sand and leaf-mould (equal parts) should be used. If leaf-mould cannot be obtained use loam one part, three parts sand. The loam or leaf-mould should be put through a $\frac{1}{2}$ in. riddle, using what comes through for

top-dressing. Fill the plants well up to the shoulder, just leaving out the tips. This must be done with the hand (and not spread on with a trowel or spade, as I have seen done sometimes), so that it can be well worked into the plant. Keep pressing the plant firmly into the ground all the time, and the result will be so much the better the following flowering season. The shoots will at once start to root into the fresh compost, and in the course of a year or so you will be rewarded with fine healthy clumps full of flower, instead of a poor miserable specimen with nothing but a few withered leaves upon it. This is the system which I adopt, and I find if it is followed no one need despair of growing *Gentiana verna* and *bavarica*, *G. imbricata* or *pyrenaica*. If the above instructions are carried out, I am sure anyone will be well repaid for the little extra trouble entailed by their success in growing these beautiful plants; in fact, all the smaller class are very beautiful and well worth growing. *G. acaulis* likes a little limestone mixed with the soil. In any damp place it is as well to drain the spot where *acaulis* is planted, as

the roots will be warmer, and it will help to ripen the crowns for flowering. *G. septemfida*, *G. arvernensis*, and *G. Pneumonanthe* like a rather peaty soil, require a little shade, and do well on the edge of the bog garden.

GERANIUM ARGENTEUM. A plant of very easy culture, which gives a fine effect when planted between the crevices of the rocks, leaving plenty of room for the roots to get well back. Limestone and loam, equal parts.

GEUM REPTANS (*Europe*). A very interesting Alpine, and of quite easy growth, requiring sunny, sandy banks ; in fact, it will do well in pure sand. It seems to run and root freely in this, making runners like a strawberry, which should be pegged down to enable them to root more freely. *G. Rossi* (*N. America*) and *Geum Roylii* are very useful rock plants, and do well in ordinary loam in a sunny place.

GLOBULARIA NANA (*Europe, &c.*). A very interesting little Alpine, requiring poor, sandy loam, mixed with grit in equal parts. Give it a full south aspect, either on the flat part or behind a rock, so that the roots can get well down behind and the foliage hang down the

face of the rock ; planted thus it forms quite a compact carpet. Sand and leaf-mould as a top-dressing added once or twice a year are very beneficial to the young roots. There is a white form of the above, which is very rare. For it similar treatment to *nana* is required, but it is not quite so hardy, and must be sheltered from the wet (during winter) and also from the north winds. *G. alpinum* (*South Europe*). A very interesting and rare Alpine. Unlike the above, it grows bush-like and bears larger flowers on long stalks, requiring a more sheltered place in full sun. Plant in a well-drained part in rough loam, with a little hard peat added and sandy grit—two parts loam, one part grit, and one peat. If the climate is in any way inclined to dampness, peat should not be used, but a little limestone may be added in its place. There are other species well worth growing, which are of easy culture ; ordinary garden loam and sand in a sunny place suit them well.

GNAPHALIUM LEONTOPODIUM (*Alps of Europe*), perhaps better known by the name of EDELWEISS. In many places this is found difficult to grow, doubtless owing in some

degree to overdue care, as the idea is pretty prevalent that it will only grow on a very high place between rocks. I remember a gentleman who brought a batch from Switzerland home with him and had it planted on the top of an old castle ruin some 100ft. high, someone having told him that it would not grow in England except in such a position (of course, anyone can imagine what would be the consequence of leaving it there without water or care of any kind). I may say it will grow almost as freely as the common *Cerastium tomentosum*. I have seen it used for edging beds in the way anyone would use Alyssum or Arabis. It likes a nice light, sandy soil in a dry, sunny position, and can be raised freely from seed. Sow in the autumn in a dry, warm place, and the young plants can be transplanted in the month of May; if the old plants are taken up to re-plant, it should be done in April or May and not in the autumn. *G. grandiceps* is not so easy to grow a more sheltered place being required. It is better adapted for the rock garden, and should be given a nice sunny nook, facing south and protected from the north where it can be

kept dry in winter. There are a few other species of merit worth growing, all being equally hardy.

GUNNERA MAGELLANICA. This species is well adapted for the rock garden, in shady places on the side of the bog or near the water's edge ; on account of its dwarf, creeping habit and bright, evergreen foliage, peaty soil suits it best, although it will grow fairly well in ordinary garden loam.

GYPSOPHILA CERASTIOIDES requires a little more attention than the other species, and appreciates a full south aspect in gritty, poor loam.

HELIANTHEMUM LAVANDULÆFOLIUM is perhaps not quite so hardy as some of the other forms, and requires a more sheltered nook ; full south, between stones. A little limestone added improves the appearance of the foliage. *H. lunulatum* will do well under the same conditions ; protect from the north-east wind.

HELONIAS BULLATA. A plant which does well in any ordinary peaty loam. It requires a rather shady place on the side of a bog

or damp part of the rockery. Care should be taken in the autumn to clear away the old leaves and place a little dry peat around the crowns of the plant. This will prevent it damping off in case of a very wet winter. The peat need not be removed in spring, as the crown will soon push through, and the peat makes a nice dry bed for the new leaves to rest upon.

HEPATICANGULOSA may be grown in shady places on banks in the rock garden or under trees where nothing else will grow. This plant grows well and does not lose its foliage in winter. When grown in the open a little top-dressing of peaty loam is very beneficial once a year worked among the leaves.

HOUSTONIA CÆRULEA. A plant which many people find difficult to keep during the winter, when it should be carefully protected from the wet, and requires very much the same treatment as *Myosotis rupicola*. It must not be disturbed or watered after the month of September. Leaf-mould sand, and good loam in equal parts. It should be planted so that a stone can overhang the place and

thus keep off the rains during winter. *H. cærulea alba* also does well under the above treatment. These two combine nicely, and should be grown on every rockery. A little top-dressing is required in the spring and a gritty soil.

HYPERICUM CORIS, H. REPTANS, and H. REPENS. These require dry, sunny places between stones, or just behind a stone, so that the foliage can grow down the face. Rough loam, sand, and grit. *H. nummularium* requires rather more sand, and will do on a bank, clear of stones, where it can run into the soil. A sunny place suits it well. *H. olympicum* requires a more sheltered place, in good loam, and is better adapted for the border part of the rockery. *H. tomentosum* is not quite so hardy, and should be planted where a little protection can be given in winter, as its woolly foliage holds the moisture. There are several smaller species which do equally well in ordinary gritty loam; give a full south aspect.

IBERIS STYLOSA. This miniature plant requires limestone and does well between

stones on a sunny part of the rockery. Add a little loam and leaf-mould, and wedge very tightly between stones.

IRIS CRISTATA, I. LACUSTRIS, and I. VERNA. These three little bog Irises require to be well looked after. If planted near anything which grows to any size they will soon be lost. They should be placed on the edge of small bogs or near the path-sides in dampish peaty soil, in partial shade. If planted on a damp bottom they may be planted in the full sun; then the growth will ripen better for the following year's blooms. They require top-dressing every autumn and in the early spring with a mixture of peat, leaf-mould, and loam worked well amongst the roots. *I. Douglasiana*. To grow and flower this well it must be planted close to a stone facing south or south-west, in an elevated position. This Iris should be pressed close to the stone, then fill in with a compost of leaf-mould and rough loam mixed with a little grit. *Iris orchioides*, bulbous species. A beautiful and early-flowering species; it requires a similar position to *Douglasiana*; limestone may be mixed with good loam in

equal parts. Plant 8in. deep, close to a wall or rock, or under a south wall where the bulbs can get properly ripened during the autumn. It is so easy to grow and increase that no garden should be without it. Its home must be well drained. *Iris paradoxa* is a beautiful species and of comparatively easy culture; sandy, gritty loam; full sun, where it can be dry in the autumn and winter.

LATHRÆA CLANDESTINA. A curious plant, which succeeds on the roots of the poplar tree. This should be planted on the surface where the roots of the tree are spread about. Loam, leaf-mould, and sand in equal parts. If the poplar roots are not near the surface a portion of the soil should be removed until you can see them, then add the compost, mixing it well among the roots before planting. Add a little sand after the plant is placed, then give a good watering. It should be covered over with the sand and compost; plant on the north side of the tree. It requires shade. A top-dressing of leaf-mould and sand should be given every spring.

Photo by

ANDROSACE FOLIOSA.

[Mrs. Stingsby.



It is very beautiful when in flower, as the blossom lasts for weeks. Plant in the autumn.

LEWISIA REDIVIVA. Strong loam and leaf-mould; in a moist place. It will grow well in the full sun if plenty of water can be supplied to the roots. Care should be taken to put a little clay at the bottom of the hole where the plant is going to be placed; this will retain the moisture during the resting season without overhead watering. It likes to be well roasted during the summer. Just before flowering it loses all its leaves and looks like dying; this is the time when the water should be partially withheld until the flower makes its appearance; then it can be freely watered again until it has done flowering.

LILIUM KRAMERI. A rather difficult lily to grow in the ordinary way, requiring both special soil and treatment to be able to succeed well. Take out the soil, say to a depth of 18in., add 6in. of drainage (broken stones or bricks), and cover with rough loam 2in.; make a mixture of compost, one part rough loam, two parts white sand, add a small portion of dried cow-dung (well decayed)

among the soil, turning the whole two or three times over so as to mix well together ; then spread a layer 3in. to 4in. deep, plant in the lilies, pressing them firmly down, then cover the whole surface of the lilies likewise with fine white sand, and fill in with remainder of compost. Make fairly firm with the foot. They should be planted on the north side of a hedge or wall, and must be sheltered from the strong winds as much as possible. This lily is most useful for cutting, the flowers being sweet-scented and not too large. The bulbs are of a better constitution than *L. auratum*, and will last much longer if proper compost is used. *L. Parryi* is another most difficult lily to grow satisfactorily. I have tried this in many situations and under all sorts of conditions, and the most suitable place I find is a dry situation. Rough loam and white sand ; cover the bulb 1in. deep in the sand after planting, and add 3in. of loam and sand ; the place must be well drained. *L. Washingtonianum* should be planted in a dry situation in a compost of peat, white sand, and loam in equal parts. Drain the place. It does well close to a yew hedge on the north

side, and should be planted 3in. deep; the compost must not be pressed too hard above the bulb, as it should be left free to run in the soil. Under the above conditions success is almost certain.

LINNÆA BOREALIS likes a shady place on the side of bog; peat, loam, and sand; or on the north side of rockery near a path-side, where it can have attention. A top-dressing of leaf-mould and sand should be given once or twice a year, so that the young tendrils may root freely. Pegging down should be attended to, in case the wind loosens the shoots. A rather damp bottom suits it well.

LINUM SALSOLOIDES. A most useful plant for dry, sunny fissures of rockwork; full south. Plant tightly between stones. Gritty loam and leaf-mould—two parts grit, one part loam, one part sand—will suit it. Leave sufficient room for the plant to hang over the stone.

LITHOSPERMUM GRAMINIFOLIUM. This plant requires a little limestone if possible. If no limestone is obtainable, use rough grit and strong, rough loam, with a little sand added. Plant in a sunny position. A good top-dressing of fine limestone and loam should be given

twice a year. It is a hard-wooded shrub, and will make quite a neat bush if this top-dressing is continued year by year. The compost must be worked amongst the branches, covering them well, then they will root freely from the old stems and continue to do so, making young growths on the top every year. The place where it is planted should be well drained, as it does not like damp during the winter. The best time to top-dress is in the month of July or August. It will then root freely in the fresh compost before winter. *L. Gastoni* requires a similar place, but does better if planted between stones. Limestone suits it best. It should have plenty of depth of earth. The compost is made as rough as possible. *L. oleæfolium*. This plant requires a rather different soil; a little peat added to the loam and grit is most valuable—one part peat, one part sand, one part loam, and one part grit. Mix well together; plant on a sunny bank. This plant will grow well on the level, or on a sloping bank facing south-west. *L. petræum* requires a dry, sandy bank; full south. Use a mixture of three parts sand and one of rough loam;

it should be top-dressed in the manner described for *grammifolium*, only sand and a little loam should be used. It roots freely from the old wood. *L. prostratum*. A well-known species, which likes a north-east or north-west position, but must be sheltered from the wind on a sloping bank. Compost: rough loam, peat, leaf-mould, and grit or sand in equal proportions. The place should be well drained, but the drainage should be 8in. or 10in. from the root of the plant. A little top-dressing in the spring will improve it very much. *L. tinctorum*. A very rare plant, and not often seen in gardens; in fact, an almost extinct species. This requires special treatment. It should be kept as dry as possible during the winter on a south part of the rockery, where a stone hangs over from the north. Beneath this stone will prove a very suitable position for it. Give it a deep, sandy loam, leaving plenty of room for the tap root to descend amongst the rocks, and it will stand any amount of burning in the summer when once established. If a nice compost is put round the plant in the spring it will no doubt ripen the seed. Young plants may be obtained

in this manner, though in this instance care should be taken not to put the top-dressing near the neck of the plant, as it requires freedom in that quarter. Sand is the best thing you can use for top-dressing; it will take abundance of moisture during the growing season, but it must not have it in winter, for then it must be kept perfectly dry.

LYCHNIS PYRENAICA. A charming little plant. This is purely a rock Alpine, and revels in sunny niches of the rockery. If planted high up there should always be ledging, so that when the plant ripens its seed it can throw it upon the ledges beneath, where it will germinate and cling to the least bit of rock or earth. It is one of those curious plants which gather the seed-vessels towards itself before it ripens. When ripe the seed-lobe springs open, throwing the seed all amongst the rocks, where it takes root and grows. Limestone and loam. Wedge the plant tightly between two pieces of limestone when planting. The other varieties of *Lychnis* are all of comparatively easy culture. *L. Lagascœ* requires a rocky ground, south position, loam, sand, and grit.

MARGYRICARPUS SETOSUS (*Peru*). A shade-loving plant, adapted for the north side of a bog or shady side of the rockery. Very useful for creeping over banks, the bright green foliage and pure white berries making a nice contrast. Loam, leaf-mould, and sand; top-dress in the autumn, and add a little rough grit to the compost.

MAZUS PUMILIO (*New Zealand*). This small creeping plant does well either in the sun or shade. If grown in the sun a little peat and leaf-mould should be added to the loam. A sloping bank amongst the rocks suits it admirably. If on the shady and damp side of the rockery gritty, sandy loam is most suitable, with a top-dressing of pure grit in the autumn to prevent damping during winter. *Mazus rugosus* (*China*) is not quite so hardy, and should be planted on a more sheltered part full south, using the same compost.

MECONOPSIS WALLICHI (*Himalayas*, better known as the Himalayan Poppy). Requires a damp, shady place, with abundance of water at the roots during the summer season. Strong loam and peat; a little grit added to the

compost improves and keeps it open. A plant three years old, if properly treated, will make rosettes $2\frac{1}{2}$ ft. to 3ft. across. Shelter well from the north and east winds, as the leaves should never be without moisture standing on them. If the cold winds sweep across the plant the moisture soon goes, and the leaves become dried up and start to decay round the edges. They look well planted by the side of a pond between two rocks, with plenty of depth of soil for the roots. *M. nepalensis* may be treated in the same manner. They are both noble plants. I have seen here one plant, $3\frac{1}{2}$ ft. through, bearing 238 flowers and buds, with a stem $5\frac{1}{2}$ ft. high. They are worth growing as foliage plants alone.

MERTENSIA ALPINA (*Rocky Mountains*). This plant is not too easy to grow, and requires a partially shady place where it can have plenty of moisture during the growing season, but requires to be kept dry during the winter. It must have a well-drained position, and a mixture of sandy peat and leaf-mould with a small portion of rough loam. Snails are very fond of the young growths. Attention should be paid to it

in the early part of the year, just when it is making its young shoots.

MITCHELLA REPENS (*N. America*). A very interesting little creeper which loves deep shade on the side of a bog garden or the north side of a rock where it is sheltered from the north wind; plant it in peat, leaf-mould, and a little white sand. It, like *Linnaea borealis*, must be looked to once or twice in the season, and have the shoots pegged down and a top-dressing given of the above compost, taking care to work the soil well among the shoots, which will start to root and keep close to the ground.

MORISIA HYPOGÆA (*Sardinia and Corsica*). No rock garden should be without this little gem. It is of the easiest culture, and grows in almost any position. Deep sandy loam and leaf-mould. The place should be well drained, the drainage being kept well down, as it is a very deep-rooting plant, and requires to descend; 1ft. is about the average depth of the compost above the drainage. Of course, in damp climates the depth of soil should be somewhat diminished. It requires no protection in winter, and in a

favourable situation will begin to bloom in February and continue until June. In fact, I have seen it in full flower in December on a south bank of the rockery. A little top-dressing should be applied in November of gritty loam and leaf-mould; whatever will go through a $\frac{1}{2}$ in. riddle may be used. It roots and spreads very freely in this, and soon forms quite a large patch.

MYOSOTIS RUPICOLA (*true*) (*Scotland and England*). This almost resembles *Eritrichium nanum*, and requires nearly the same treatment—that is, as regards dryness during the winter. It has a better constitution, and grows freely from seed. Plant in strong loam in chinks of limestone or sandstone. It likes to be wedged tightly with a little soil on each side to prevent the stones from crushing the roots too much. The south-west side of the rockery or north-west is a very suitable position. No water must stand near it during the resting season. If possible, a stone should be laid over it in the autumn, and removed when you see signs of life in the month of February. It will take no harm from moisture when once it starts into growth, on account

of the whole plant and flower being so dwarf (not more than 2in. high). It is as well to plant it as near the path as possible in some position where its beautiful flowers can be easily seen. There are several other interesting species well worth growing. They are of easy culture.

NARCISSUS MINIMUS, N. CYCLAMINEUS MAJOR, N. TRIANDRUS ALBUS, and N. JUNCIFOLIUS. These four little gems must not be left out of the rock garden. They are especially good for planting on ledges or banks near the walks. Good sandy loam, with a south aspect, where they can ripen their bulbs in summer, will suit them well.

NIEREMBERGIA RIVULARIS (*Argentina*). Although a plant that loves the water-side in its native place, it does not do well in this country in damp places. It succeeds best in good strong loam in a full south position; a little peat and leaf-mould added once a year as a top-dressing are very beneficial. It is a surface-rooting plant and requires a little addition to help the young growth.

CENOTHERA MARGINATA or EXIMIA (*California*). This plant loves a dry, warm bottom, either on limestone or deep sandy loam. The place must be well drained. It runs freely in the ground; the young shoots are very apt to get pulled off, as sometimes the young growth will make its appearance quite 1ft. away from the original place, thus the whole plant is often destroyed. If planted out in the border, a hole should be made 2ft. wide and 18in. deep; fill in 4in. of drainage, add a few inches of rough loam, fill the hole with pure river sand, then put your plant in the centre of the hole. It will live thus for years and increase and flower freely. Of course, this is only if you have a damp, clayey sub-soil.

OMPHALODES LUCILÆ (*Asia Minor*). A most interesting and rare Alpine, and a plant that most people find difficult to grow. It is a plant that will not stand coddling, and if this is attempted it soon dies. The most suitable place is the north-east side of the rockery, where it can be sheltered from the south sun and north wind. The morning sun suits it, say up to ten o'clock. Use a mixture



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of loam, peat, and sand in equal quantities. Great care should be taken to keep the snails from it, as it is one of those plants to which slugs and snails are very partial, and the slightest neglect exposes it to great danger of being doomed in a single night when it is in a young state. A protection of zinc may be made in the shape of a hoop, say 3in. deep ; if this is placed round the plant it will prevent any slugs or snails from getting near. This is the only safeguard I have found against them. Of course this can be removed when the plant gains strength. We have a plant growing here which has been in the same place for thirteen or fourteen years, and looks as healthy and well as ever. It had no special care whatever, except the zinc hoop which is placed round the plant. I have regularly taken five and six cuttings every year from it. It is planted on the north side of a large Cupressus hedge. A top-dressing of leaf-mould and sand is given every year.

ONOSMA ALBA-ROSEA (*Asia Minor*). Of recent introduction, and may be considered not quite so hardy as *taurica*, but yet will

withstand 30deg. of frost if planted in a suitable place, wedged between stones in an elevated position facing full south, and protected from the north and east; in a hot, dry corner it will do well. It must be perfectly dry during winter. It may lose part of its foliage, but will spring again from the old stems. *O. taurica* is of comparatively easy culture, and is often grown with Carnations during the summer, and treated the same way as regards the layers; but keeping it through a damp winter is quite another thing. I find it succeeds well if planted on a knoll of rockwork on a very dry bank, where the trees hang over, in comparatively shallow soil, where it can be burnt well up in the summer and gets the wood well ripened.

OXYTROPIS PYRENAICA (*Pyrenees*). A compact little rock plant of easy culture, south or south-west aspect, in gritty sand and leaf-mould, equal parts; between stones or on the flat part.

PAPAVER ALPINUM. Very useful for small gardens, and adapts itself to any part of the rockery in sandy loam. If a little seed be

scattered amongst the rocks it will soon germinate, and have a good effect when the plants are in bloom.

PELARGONIUM ENDLICHERIANUM (*Orient*). The only hardy species known; this should be grown on the sunniest and driest part of the rockery. Wedge tightly between stones with a compost of limestone and strong loam. Protect from rain during winter, which can be done by laying a stone over the place where it is planted.

PENTSTEMON HUMILIS (*Western North America*). An interesting and beautiful species, and of easy culture. Very useful for small rockeries or the front of well-drained borders. South-west aspect; in light, sandy loam. Use a little top-dressing in the autumn for this. There are many other beautiful species and varieties well adapted for the rockery and of easy growth.

PETROCALLIS PYRENAICA or DRABA PYRENAICA (*Pyrenees and Alps*). Purely a rock plant, and likes similar treatment to *Draba Maweanae*. This should be top-dressed once or twice a year with fine grit worked well amongst the foliage; especially in the autumn

grit should be used as a safeguard against the damp, to injury by which this plant is very much subject. The dust should be taken out of the grit, to prevent any moisture standing amongst the foliage. This will keep the plant in good order during the resting season. Grit-stone must be used instead of limestone, as in *Draba Mawearna*.

PHILESIA BUXIFOLIA (*Valdivia*). A shrubby plant, suitable for the dry side of a bog garden. Give hard fibrous peat and white sand, with a small portion of rough loam mixed well with the peat and sand; the plant should have the full benefit of the sun and be sheltered from the north. A little protection in winter with a little bracken is very beneficial to the buds. It is a good plan to layer every second year, pegging each shoot close down to the ground, then cover over with peat and leaf-mould. It will root freely from the stems and soon form quite a nice bush.

PHLOX SUBULATA AND VARIETIES are all very useful for the rock garden on the front part of the flower border. They do well in any ordinary soil with little drainage.

In wet, clayey ground they keep much longer in bloom; for hanging down the south side of stones on the rockery they are most useful, or on dry slopes. *P. Vivid*, *P. Nelsoni*, *P. The Bride*, and *P. G. F. Wilson* are some of those which are best worth growing.

PHYTEUMA COMOSUM (*Europe*). A very remarkable plant, which wants rather special treatment. A sunny part of the rockery should be chosen, where it is fairly dry. In winter the plant should be fixed tightly between limestone. A layer of fine broken limestone and strong loam—two parts limestone, one part loam—without any sand, will be a suitable compost. After you have placed your bottom stone, put a portion of the compost on the stone; then lay on your plant, leaving plenty of room for the root to go down (as it forms a tap root), then add a little more compost on the plant before placing on the other stone. Make these as tight as you possibly can without injury to the roots or crowns of the plant. It should be well looked after in the spring, so that the slugs do not eat all the crowns away. If the slugs

get to the plant they will be sure to eat out the centre crowns, then only a few leaves will appear the following year. Top-dress in the autumn and spring with fine, broken limestone, letting it run well between the stones. *P. Scheuchzeri* requires similar treatment. Most of the other species will do in ordinary loam and sand.

POLEMONIUM CONFERTUM (*N. W. America*). A handsome little plant and worth growing on the rockery, requiring a well-drained place, south-west aspect, good loam, leaf-mould, and sand. It should be divided every second or third year and given a fresh place, otherwise it will die out.

POTENTILLA NITIDA AND VARIETIES (*Europe*). Purely rock plants, and succeed well on a south or south-west aspect. They should be planted on an elevated piece of ground, either with a flat surface or between stones—not too high from the path edge or you will lose the beauty of the flowers—in grit, leaf-mould, and loam mixed in equal proportions. They require top-dressing once or twice a year; run a portion of fine grit among the leaves and stems, or they will grow out of

the ground and die. The other sections are all of fairly easy culture in sunny places.

PRIMULA ALLIONI (*Alps of Dauphiné*). Of excellent merit and well adapted for the north side of rockery. Great care should be taken not to let this plant get dry at the roots. It will grow in the full sun or deep shade (that is, in a cave), but it must have plenty of light and moisture. The water if possible should be conveyed direct to the roots, and not over the foliage of the plant. Wetting the foliage should be avoided as far as possible. To make a place on the north side between stones, a hole should be made deep enough to allow of a lining of clay to be placed at the bottom and sides; then place a piece of stone, limestone, or sand on the edge of the clay, adding a compost of fine, broken limestone mixed with loam—three parts limestone, one part loam. Lay the compost on the stone, then place the *Primula* thereon, adding more compost; then place another stone on to make it firm, at the same time letting the roots spread down to the clay. Fill in behind the stones with compost, then add another large stone to

hang over the *Primula*, say, 12in. above the plant, sloping in towards the bank, so that any rain falling on the latter stone will run off direct to the little clay pit you have made, and so prevent the plant from getting dry. It can be watered artificially in the same manner; the clay will hold moisture for a long time, and the roots of the *Primula* will soon take advantage of the moisture, and thus maintain themselves in the driest weather.

Primula Auricula marginata (*Alps*).

A most valuable plant for dry fissures of rockwork facing south or east. Strong loam and limestone should be used. When planting in a long crevice clay should be used instead of loam, to wedge the plants tightly between the stones, starting at the bottom of the crevice and going upwards. A piece of limestone should be placed between every two plants and clay pressed close to the roots between the stones; thus it will give a beautiful effect all the year round.

P. marginata and *Varieties* may be grown on the same principle. This plant

has a tendency to grow out of its place, and should be replanted every other year or so—that is where you cannot top-dress. If planted on the level of course you can fill in among the growths every year with a top-dressing of limestone and strong loam. *P. ciliata* v. *purpurea* requires to be planted firmly in a strong clayey loam, and should be looked to every spring as regards top-dressing; south aspect. *P. calycina* should have a north-east aspect, well-drained position, rough loam and limestone, two parts each. *P. Clusiana*, south-west aspect; peat, loam, and sand—two parts loam, one peat, one sand. *P. frondosa*, south aspect; good strong loam, with a little sand. *P. glutinosa*, shady place or north aspect; peat, loam, and sand; if a damp position the place should be drained. *P. involucrata*, north aspect; strong loam, with a little peat added. Care should be taken to top-dress every autumn, as it has a tendency to grow out of the ground. If top-dressed carefully it will increase fast, and soon make a fine clump on the side of a bog where the soil is pretty firm. *P. latifolia* will do under the same

conditions; a little more peat may be added. *P. minima* will do in a sunny place if it can be well watered in summer; in a partially-shaded place it grows well, but does not flower so prettily. It requires top-dressing every year. This does well in gritty loam and leaf-mould. *P. nivalis* (*Caucasus*). A partially-shaded place in deep, peaty loam suits this species well; the place should have 1ft. to 18in. deep of good soil to ensure success. *P. sikhimensis* (*Himalayan Cowslip*). Plant on the north side of a bog in good loam and leaf-mould. If the place is damp a little grit should be added. No stagnant water should be allowed to reach the crown in winter, or it will rot away. Plant on the side of a bank or in a slanting position, so that the rain or snow does not fall into the actual crown. *P. rosea* loves a good deep loamy, peaty soil on the shady side of the rockery or on the pond edge, where the roots can reach the water. *P. venzoi*, *P. Wulfeniana*, *P. Kernerii*, *P. Juribella*, *P. Balbisii*, *P. glaucescens*, *P. Heerii*, *P. Kitaibeliana*, and *P. carniolica* require the same treatment as *P. Clusiana*. Such as *P. purpurea*, *P. japonica*,

P. pulcherrima, and *P. denticulata* do well in good ordinary loam in almost any aspect.

PYROLA ROTUNDIFOLIA (*Britain*) likes a north aspect ; it does not care about the sun ; peat, leaf-mould, and sand in equal parts suit it admirably. The other species will grow well under similar treatment.

RAMONDIA PYRENAICA and PYRENAICA ALBA. There is no doubt that these plants do best in a north aspect, and are most useful for covering a north wall. If you have a north wall where you cannot grow anything, try *Ramondia pyrenaica*, by placing a few stones at the bottom, say 2ft. from the wall, then fill in with compost, peat, and loam equal parts. The fine should be sifted out of both peat and loam before using ; a portion of broken limestone may be added and mixed well with the peat and loam. No doubt it will seem strange to add limestone to peat, but I have tried the experiment, and find the plants do much better where limestone is used. It keeps the peat and loam sweet much longer. After turning the compost over two or three times, throw the soil amongst the

stones already placed for the groundwork, then add stones as you advance higher, to keep the plants in their places and prevent the soil from washing down; by so doing you will make a beautiful bank of *Ramondia*. The north wall of a greenhouse or dwelling-house will answer just the same purpose. We have at present here in the Nursery a wall covered with *Ramondia*, from 200 to 300 fine clumps, which are the admiration of all who see them. Great care should be taken to water well during the summer. It prevents the leaves from shrivelling or turning brown. They can be grown on a south-east aspect; in fact, full south. If in this position, abundance of water must be given to the roots or they soon perish. The great secret in growing *Ramondia* is the constant watering during summer; to keep the foliage perfect during hot weather the watering should be done in the evening and never during the day. (This is only where they are planted in the sun.) When planting, each plant should be laid nearly on its side and the soil pressed firmly below; lay on the plant, then add more soil, then place a stone above,

RAMONDIA PYRENAICA.



pressing tightly, bringing the stone and compost close up to the leaves of the plant ; then fill in all around with compost, which should be prepared before starting to plant. They look very fine in a crevice on the north side of a rockery, close to or overhanging water, the moisture rising from the water no doubt helping to keep the foliage green. *R. pyrenaica alba* may be grown under similar conditions. *R. nathaliæ* may be treated in the same way, only limestone must not be added to the compost for this species, as it strongly objects to it, and will soon lose all its foliage if limestone is used. .

RANUNCULUS ANEMONOIDES (*Southern Tyrol*). Likes a sunny bank on the rockery, deep loam and limestone equal parts ; great care must be taken to top-dress or re-plant just after flowering, as it is sure to work out of the ground, and as it flowers early, this can be done before the hot weather begins. If left without top-dressing it will no doubt shrivel up with the sun, as the roots will have been left all exposed. *R. glacialis* (*Switzerland and Pyrenees*). A rare little Alpine from a high elevation ; not often seen

on rockeries, although of easy culture. A well-drained place must be chosen facing the south or south-west, either on a sloping bank or on the level. Make a compost of leaf-mould, sand, and good loam, equal parts. Take out the existing soil, drain the part well, then fill in the prepared compost, 6in., then put in the plants. If planted when dormant the crown should be buried 2in. below the surface. Make firm on the top; watering should be commenced as soon as the little crown begins to push through the ground if it is very dry weather. This will be in the month of March. After March, water must be given daily until the plants are in flower, then watering should gradually stop. By this time it will have made small runners. These should be carefully pegged down and a little top-dressing put over the surface of the bed, to enable the runners to form eyes and take root, which they will soon do in the fresh soil. As soon as the leaves are all gone the watering may cease altogether until the following spring, when the same treatment will be required. *R. alpestris* (*Alps, &c.*). This is of good constitution, and likes a

little more shade. Plant in peat, loam, and leaf-mould in equal parts, with a little grit added to keep the soil open; the place must be well drained. That a sharp look-out for snails be kept is most essential in the early spring, as they often eat out the crowns before they are fairly above ground, and the flowers are lost for the season. A little rough grit will do much to prevent this occurring; if placed over the crowns the fine must be taken out, only using the rough. *R. parnassifolius* (*Southern Switzerland, &c.*) loves a little more shade than the above; in fact, it will do remarkably well on the north side of the rockery in strong, rich loam, well drained; this also benefits by top-dressing. There are many other species; their positions are given at the end of this book.

RHODODENDRON CHAMÆCISTUS (*Tyrol*). This miniature Rhododendron is most useful for the rock garden. A partially shady place suits it best, although it will grow in the full sun. To succeed in the sun with it you must have the plant well established before planting out, or it must be shaded from the sun by artificial means

for some time until it gets fairly established ; then it will bloom much more freely than in a shady place, as it has a chance to get the wood well ripened and buds set for the following year, whereas it has not that advantage in the shade. Hard peat and sand should be pressed firmly against the roots ; it should be top-dressed twice a year with hard peat and sand. *R. lapponicum* and *setosum* require more shade, and will do on the north side of a rockery in peat, rough loam, and sand. The plants must be made perfectly firm, or they will soon die away when dry weather comes.

ROMNEYA COULTERI. I can scarcely call this an Alpine, although it requires special treatment. Plant in good deep, rough loam and sand, on a full south aspect, where it is free from overhanging trees. The wall of a dwelling-house suits it well. If the place is at all damp it should be drained. Before planting, the hole should be made 3ft. deep ; add 4in. or so of broken stones or bricks, then fill in the compost after it has been well mixed ; make firm, then plant. It is a strong-feeding plant, and will require plenty of water during the growing season. Care should be taken in

planting to get the base of the plant 2in. or so below the level of the soil. It must be trodden firmly all round (not on the actual base), so as to press the soil tightly to the base of the plant, and enable the young roots to take hold of the new soil more readily. As the soil dries it often shrinks away from the ball and leaves a space; in this case the young roots die before reaching the new soil.

RUBUS ARCTICUS likes gritty loam and sand on a sunny bank on the rockery where it has room to spread.

SALIX RETICULATA, &c. These are useful for shady places, to creep over stones where other plants will not grow well.

SANGUINARIA CANADENSIS (*America*). A useful rock plant, requiring warm, sandy loam; south or south-east aspect, although it will do equally as well on the north side. If on the latter, the place must be well drained, and a little more sand added to the compost. *S. major grandiflora* is a very fine variety, and quite as easy to grow.

SAPONARIAS are all of fairly easy culture on a sunny south aspect, between stones, in gritty

loam and sand. The old plants are much improved by cutting partially back in the spring; you get more flowers thereby, and the plant is more compact. *S. ocymoides alba* is better grown on the north side of the rockery, on account of its white flowers. It there lasts much longer in bloom, and maintains the pure whiteness much longer. When I say the north side, care should be taken to plant it on a dry part of the rockery between stones. Give it good loam and grit mixed well together. This is a new plant, introduced by Mr. Backhouse.

SARRACENIA PURPUREA. Very useful and effective for the bog or pond side. If on a bog the north side suits it best; if on the side of a pond let it have a full south position where the roots can just get down to the water's edge. The water should be partially drawn away in winter if possible, so that when the heavy rains and snow come they will not flood the part where it is planted. Use a compost of sphagnum, peat, white sand, and a little charcoal—two parts peat, one sphagnum, one sand, with a little charcoal intermixed. Mix the compost well together. After the plants

are put in their places, add a layer of white (fine) sand over the surface 1 in. thick, then give a good watering; it settles the sand and prevents the air from getting directly to the roots for a few days. A top-dressing in the spring is very beneficial, in case the frost has lifted the plants out of the ground. If left in this exposed manner it will soon die, hence the need of top-dressing. A little bracken may be thrown over the crowns during winter, thus enabling them to withstand the hardest frosts.

SAXIFRAGA. I will only treat of a few of the rarer species and those requiring special treatment. *S. Burseriana*, *S. Burseriana major*, *S. Boydii alba* (or *Triplet*), and *S. Boydii*. These want rather more care than the ordinary Aizoon varieties, and should be planted in a partially shady place (but must on no account be overhung by trees or branches to cause a drip), either between stones or on the level part of the higher portions of the rockery. Plant in loam and grit in equal parts; the fine should be sifted out of the compost before using it to plant. *Burseriana major*, I may say, is the most difficult to keep during the winter season.

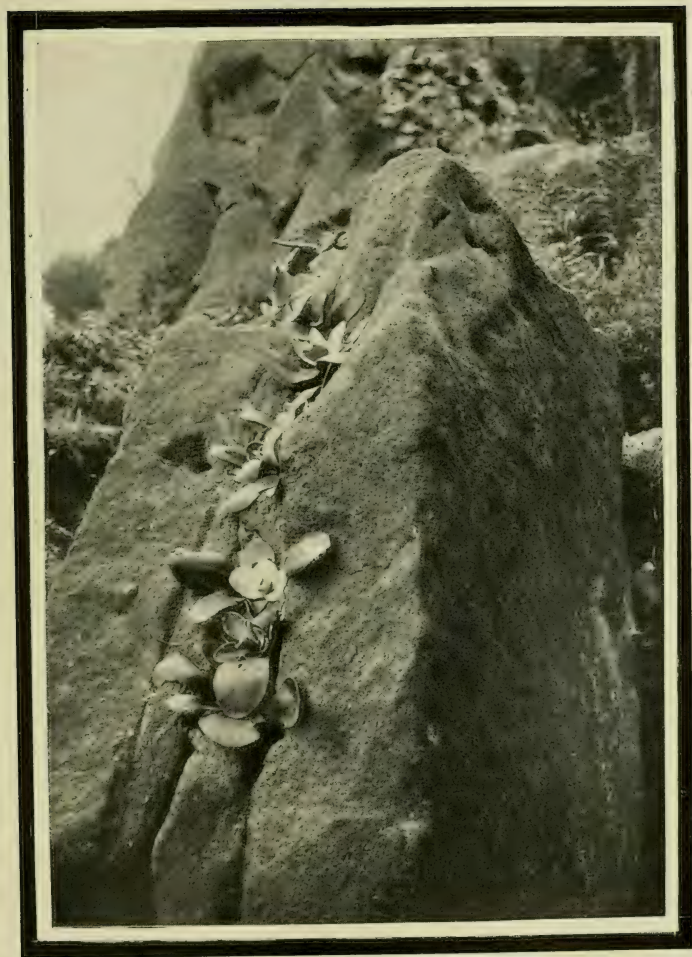
Great care must be taken to keep this species from any drip or where the moisture is excessive in the winter months, or it will be sure to damp off. In the latter part of summer it should not be allowed to become dry; the summer is a most critical time for all the sunny varieties, as in their native homes they are getting well supplied with moisture from the melting snows, which we cannot supply here, thus watering must be done artificially. Top-dress in the autumn with gritty loam. They should be looked to in the spring to see that the frost has not lifted them out of the ground. If left in this exposed condition they will soon die off, and there will be nothing to be seen by the time they should be in flower. *S. diapensioides*. This is a limestone plant, and requires to be wedged tightly between stones in a sunny position. Great care must be taken to see that it does not get washed out of its place during the winter. Compost: two parts limestone, one part good rough loam; no sand. *S. calyciflora*. A very rare and beautiful species, requiring the same treatment as *S. diapensioides*. *S. longifolia*, commonly called "The Queen of

Saxifragas," requires a more shady place, and should be screened from the mid-day sun as much as possible. It will do well on the north side of the rockery in chinks; it must be wedged tightly and filled in with a compost of limestone and strong loam in equal parts, taking care to leave room behind to let the roots work well down among the rocks; a little clay worked between the rocks when planting helps to keep the plants in their places. *S. tombeanensis*, *S. tyrolensis*, *S. Vandellii*, and *squarrosa*. These are of very miniature growth, and should be planted in chinks close under the eye, so that you do not miss any of their beauty when in flower; these should be also looked to in the spring. Other varieties and their position are mentioned at the end of the book. *S. oppositifolia*. Grit, sand, and loam in equal parts suit this section best. Nearly all the *oppositifolia* section die away in the course of a year or two; they should be taken up and pulled to pieces as soon as this decay commences, which it does generally in the centre of a large clump. It is no use leaving it in the hope of preventing the spread of the decay by

top-dressing, for the plant will grow worse each season, and will gradually die away. The clump should at once be taken up and replanted in fresh compost or on some other portion of the rockery (pull into small bits before replanting), where it will soon take hold and grow as vigorously as before; this should be done directly it ceases flowering. A little grit and leaf-mould may be used as a top-dressing, working it well amongst the shoots. If this cannot be done directly the flowering is over, it should be left until the end of August, which is a very good time. River sand must not be used for top-dressing, as it will cause a rust to come on the foliage.

There are a great number of varieties of *Saxifraga*, but I have given the outlines of culture for the rarer and more difficult; the others are of comparatively easy culture.

SEDUM BREVIFOLIUM, *S. PITTONI*, *S. FARINOSUM*, and *S. CYANEUM* are about the only species that require special treatment, being of smaller growth than some of the others. Give them a compost of gritty loam and sand in equal parts. These are suitable for the south side of a rockery on little ledges



PRIMULA AURICULA MARGINATA.

or crevices, where they can be fairly dry in winter and sheltered from the north and east winds.

SEMPERVIVUM. A very interesting group, and may be grown on any rockery stone. If a patch of clay is used (which is the best thing), make the clay fairly moist, then lay it on the stone and dibble in the Sempervivum. They will soon take hold, and make a good clump. No cow manure must be added, though it is sometimes used for mixing with the clay. It has a tendency to breed grubs; then in the summer the birds pull out all the Sempervivum to get out the grubs. Consequently, the plants are all destroyed; by using pure clay this is avoided. They will soon spread over the clay, and make a fine display.

SHORTIA GALACIFOLIA (*N. Carolina, &c.*). A plant for partial shade, requiring abundance of moisture during the summer. It must not be planted in a stagnant place, but where the water freely escapes. It does well on the north-west side of the rockery. Strong fibrous loam, sand, and leaf-mould (the latter taking the place of peat); the fine should

be taken out of the loam before mixing with the leaf-mould and sand. A top-dressing twice a year is most essential: leaf-mould and loam, mixing the loam in a finer state than used for planting. The compost must be worked well up to the crowns with the hand, then press firmly down so as not to leave any of the roots uncovered, as it is purely a surface-rooting plant. After the spring top-dressing it must be well watered, to settle the soil well among the foliage, so that the dry winds do not blow it away. If watering can possibly be done during the summer (that is, in dry weather), a good soaking every morning should be given—not a surface sprinkling, as this mode of watering is detrimental to all plant life. If it cannot be watered thoroughly do not water at all.

SILENE ACAULIS AND VARIETIES are all sun-loving plants. They require very poor soil, otherwise they make too much soft growth in the summer, which gets cut off when the winter comes. They do well wedged between stones in the crevices; full south. *S. Elizabethæ*. Another plant which requires a sunny place, wedged tightly between

stones, requiring plenty of depth behind for the tap root to descend. *S. Pumilio* may be treated in a similar manner. *S. virginica* differs from the above. It requires good deep loam, and will do well on the lower part of the rockery in a well-drained place. Treated in this manner it will attain the height of 18in., and form quite a bush, bearing abundance of flowers.

SOLDANELLAS are very interesting and beautiful little Alpines and of quite easy culture. A partially shady place, with a damp surface, just on the edge of a bog. A stone should be used on the underside to keep the plants from washing too low into the bog and becoming lost. A top-dressing of leaf-mould and sand (equal parts) must be given twice every year (spring and autumn), or they will soon dry up and perish.

TECOPHILÆA CYANOCROCUS. I cannot pass over this charming little bulbous plant without a few remarks. It is perfectly hardy, and will do well either on a north or south border or the same position on rockwork. Where it can be planted in both positions a succession

of flowers may be obtained, the bulbs on the south flowering fully a month before those on the north. In this manner there is a succession from early March until May. The place must be well drained. A mixture of good, strong fibrous loam and white sand—two parts loam, one sand. Plant the bulbs 1½ in. deep, then cover the bulbs with white sand, then add remainder of compost, and make firm. They will need no more attention for two or three years, if kept clear from other plants, and will bloom freely every year.

TOWNSENDIA WILCOXIANA. Where early flowers are required this plant is very useful. It is of quite easy growth, doing well in any ordinary loamy soil where well drained. Should be planted on the south side of a rock near the edge of path, as it is so dwarf and flowers so close to the ground. The flower is never seen if planted high up.

TRILLIUMS (*N. America*) are all useful bog or shady plants and grow very freely. Loam, leaf-mould, and peat. On the north side of a bog suits them well.

VERONICA BIDWILLII (*New Zealand*). A pretty little shrubby species. Requires a sunny position well protected from the north. Use a compost of sandy loam. This does well between stones. *V. salicornioides* should have a place on every rockery. It is of very easy culture and perfectly hardy. Plant in sandy loam on a well-drained bed. The only attention it requires is a top-dressing in the early autumn with sandy loam worked well among the shoots, and then it will root freely, forming a perfect carpet close to the ground.

VIOLA PEDATA (*N. America*). This makes a very good companion for *Ranunculus glacialis*, growing and doing well in the same compost. If planted on the side of a bog, it should be close under the eye, where it can be seen to after flowering, as being so small it often gets overrun by stronger plants and then is lost. It has a tendency to grow out of the ground, and requires careful top-dressing in the spring. Leaf-mould and loam in equal parts suit it best.

XEROPHYLLUM TENAX and X. ASPHODE-
LOIDES (*N. America*). Two very effective

rock plants, requiring a rather shady place. Plant in deep peat and loam, with a little sand added (the fine taken out of the loam and peat before mixing the sand), in a well-drained place. Just behind a rock overlooking water gives it a very good appearance. *X. asphodeloides* is the more hardy of the two, and may be more exposed.



PLANTS FOR SANDSTONE OR GRIT-STONE
ROCKERY FACING FULL SOUTH.

- | | |
|-------------------------|--------------------------|
| Acæna microphylla. | Anemone palmata alba. |
| Acantholimon glumaceum. | pratensis. |
| Achillea Huteri. | Pulsatilla. |
| tomentosa. | p. alba. |
| Adonis vernalis. | ranunculoides. |
| pyrenaica. | vernalis. |
| amurensis. | Antennaria dioica rubra. |
| Æthionema saxatilis. | tomentosa. |
| Allium grandiflorum. | Anthemis Aizoon. |
| cyaneum. | macedonica. |
| Alsine pinifolia. | montana. |
| rosani. | styriaca. |
| Alyssum montanum. | Arabis Androsace. |
| saxatile v. compactum. | Halleri. |
| s. v. citrinum. | petræa. |
| Wiersbeckii. | procurrens. |
| Androsace arachnoides. | p. variegata. |
| villosa. | Arenaria aculeata. |
| ciliata. | biflora. |
| carnea eximia. | cæspitosa. |
| Chamæjasme. | c. aurea. |
| Chumbyi. | grandiflora. |
| coronopifolia. | montana. |
| lanuginosa. | purpurascens. |
| l. oculata. | longifolia. |
| sarmentosa. | tetraquetra. |
| Vitaliana. | Armeria cæspitosa (See |
| Wulfeniana. | special note). |
| Anemone blanda. | Laucheana. |
| nemorosa. | setacea. |
| Robinsoniana. | Artemisia argentea. |
| palmata. | frigida. |

- Astragalus alpinus.
 dasyglottis.
 hypoglottis.
 h. albus.
 leontinus.
 monspessulanus.
 purpureus.
 Aubrietia Campbelliæ.
 Leichtlini.
 rosea.
 purpurea.
 Azalea procumbens (See
 special note).

 Calandrinia umbellata.
 Calamintha alpina.
 grandiflora.
 Calystegia pubescens plena.
 Campanula Abietina.
 barbata.
 b. alba.
 azurea.
 bavarica.
 carpathica.
 c. alba.
 garganica.
 g. alba.
 Allioni (See *special note*).
 G. F. Wilson.
 Hendersoni.
 Hostii.
 H. alba.
 mollis.
 muralis.
 pulla.
 pusilla.
 p. alba.
 Raineri.

 Campanula rotundifolia alba.
 r. major.
 r. pallida.
 r. soldanellæflora plena.
 rhomboidea alba.
 Tommasiniana.
 Waldsteiniana.
 Zoisii (See *special
 note*).
 Centaurea stricta.
 uniflora.
 Cerastium alpinum.
 Cheiranthus alpinus.
 Chrysanthemum alpinum.
 Cistus algarvensis.
 crispus.
 Cupanianus.
 cyprius.
 florentinus.
 incanus.
 libanotus.
 lusitanicus.
 obtusifolius.
 purpureus.
 salvifolius.
 undulatus.
 Clematis alpina (Atragene
 alpina).
 Davidiana.
 Codonopsis ovata (See *special
 note*).
 Convulvulus Cneorum.
 Coprosma acerosa (See *special
 note*).
 Coronilla vaginalis.
 montana.
 Cyclamen Coum.
 hederæfolium.

- Cytisus Ardoini.
 decumbens.
- Dianthus alpinus (*See special note*).
 atrorubens.
 cæsius.
 c. arvernensis.
 corsicus.
 deltoides v. pulchellus.
 fragrans.
 fimbriatus.
 delicatus.
 integer.
 marsicus.
 monspessulanus.
 neglectus.
 petræus.
 pinifolius.
 pungens.
 sylvestris.
 zonatus.
 sub-acaulis.
 Freynii.
 cæspitosus.
 caucasicus.
- Draba Aizoon.
 aizoides.
 bruniæfolia.
 ciliata.
 saxicola.
- Dracocephalum Ruyschianum
 japonicum.
- Dryas octopetala.
- Edraianthus caricinus.
 Pumilio.
 serpyllifolius.
- Edraianthus tenuifolius.
- Epimedium alpinum.
 niveum.
- Erinus alpinus.
 albus.
- Erodium hybridum.
 macradenium.
- Erysimum asperum.
 rhæticum.
- Euphorbia pilosa.
- Eurybia Gunniana (*See special note*).
- Fuchsia pumila.
- Genista humifusa.
 prostrata.
 sagittalis.
- Geranium cinereum.
 sanguineum prostratum.
 p. album.
 sub-caulescens.
- Geum Eweni.
 reptans (*See special note*).
 montanum.
 Rossi.
- Globularia bellidifolia.
 cordifolia.
 nana.
 n. alba (*See special note*).
 nudicaulis.
 trichosantha.
 vulgaris.
- Gnaphalium Arenarium.
 himalayensis.
- Gypsophila cerastioides.
 dubia.
 prostrata.

- Helianthemum amabilis.
 piloselloides.
 polifolium.
 umbellatum.
 venustum.
 vulgare varieties.
 Herniaria glabra aurea.
 Hutchinsia alpina.
 petræa.
 Hypericum Coris.
 nummularium.
 repens.
 reptans.
 olympicum.
 Burseri.

 Iberis sempervirens varieties.
 correæfolia.
 jucunda.
 saxatilis.
 stylosa.
 Iris atrofusca.
 Bakeriana.
 alata.
 Douglasiana (*See special note*).
 iberica.
 paradoxa.
 reticulata.
 r. major.
 Histrio.
 histrioides.
 Isopyrum thalictroides.
 Ixiolirion tataricum.
 montanum.

 Jasione perennis.

 Leptinella scariosa.
 Linaria organifolia.
 Linum acuminatum.
 alpinum.
 arboreum.
 flavum.
 narbonensis.
 viscosum.
 monogynum.
 Lithospermum prostratum (*See special note*).
 petræum.
 tinctorum (*See special note*).
 Lychnis alpina.
 Lagascæ.

 Micromeria croatica.
 juliana.
 Myosotis alpestris.

 Nierembergia rivularis.

 Oenothera linearis.
 rosea.
 speciosa.
 s. v. rosea.
 marginata (*See special note*).
 Omphalodes verna.
 v. alba.
 Onosma alba-rosea (*See special note*).
 taurica.
 Ononis rotundifolia.
 Orobus alpestris.
 azureus.
 lathyroides.

- Orobus vernus.
 Oxytropis pyrenaica.
 Papaver alpina (varieties).
 nudicaule (varieties).
 Paronychia serpyllifolia.
 Pentstemon glabra.
 humilis.
 Hallii.
 Petrocallis pyrenaica (*See special note.*)
 Phlox subulata (varieties).
 amœna.
 verna.
 Phygelius capensis.
 Phyteuma Balbisii.
 orbiculare.
 Plumbago Larpentæ.
 Polemonium reptans.
 confertum.
 Potentilla ambigua.
 aurea.
 Clusiana.
 glabra alba.
 nitida.
 n. atrorubens (*See special note.*)
 n. rosea (*See special note.*)
 n. grandiflora (*See special note.*)
 nivalis.
 pyrenaica.
 splendens.
 tridentata.
 Prunella grandiflora.
 Webbiana.
 Pulmonaria arvernensis.
- Pulmonaria sibirica.
 Pyrethrum Tchihatchewii.
 tanacetifolium.
 Ranunculus anemonoides.
 Rhododendron Chamæcistus
 (*See special note.*)
 Rosa pyrenaica.
 Rubus arcticus.
 australis.
 Sanguinaria canadensis.
 c. major.
 Santolina alpina.
 Saponaria ocymoides splendens.
 o. alba.
 Boissieri.
 pulvinaris.
 cæspitosa.
 Saxifraga aspera.
 bronchialis.
 Bucklandii.
 Burseriana.
 Churchilli.
 Cotyledon and varieties.
 elatior.
 Engleri.
 apiculata (*Frederici Augusti*).
 Gaudini.
 Hostii.
 juniperina.
 Kolenatiana.
 lingulata.
 longifolia.
 pectinata.
 recta.

- Saxifraga* Portæ.
 Rocheliana.
 rosularis.
 sancta.
 scardica.
 stelleriana.
 Sturmiana.
 tyrolensis.
 Wulfeniana.
 Zimmeri.
 Megasea Milesii.
 M. Stracheyi.
Scabiosa alpina.
 bellidifolia.
 Parnassii.
Scutellaria alpina.
 orientalis.
Sedum acre aureum, &c.
 album.
 atropurpureum.
 amplexicaule.
 brevifolium.
 Browni (Brauni).
 corsicum.
 Crista-galli.
 elegans.
 Ewersii v. turkestanicum.
 farinosum.
 glaucum.
 grandiflorum.
 ibericum.
 lydium.
 mexicanum.
 Middendorffianum.
 Nevi.
 oreganum.
 pallidum roseum.
 Pittoni.

Sedum reflexum.
 rotundifolium.
 rupestre.
 sexangulare.
 Sieboldi.
 spirale.
 ternatum.
 Wallichianum.
Sempervivum atropur-
 pureum.
 Boutignyanum.
 cornutum.
 californicum.
 Brauni (Browni).
 Corni de Canzo.
 chrysanthus.
 dellassiæa.
 Funcki.
 fimbriatum.
 globiferum.
 glaucum.
 Heufelii.
 hispidulum.
 latifolium.
 montanum.
 Pomelii.
 Reginæ-Amaliæ.
 rubicundum.
 spinosum.
 triste.
 Webbianum.
 violaceum.

Senecio incanus.
 adonidifolius.
Silene acaulis and varieties.
 alpestris.
 caucasica.
 maritima plena.

- | | |
|-------------------------------|------------------------------|
| Silene Elizabethæ. | Veronica pectinata. |
| Pumilio. | peduncularis. |
| Schafta. | prostrata. |
| Spiræa crispifolia (bullata). | rupestris. |
| decumbens. | Verbenaceæ. |
| Statice incana hybrida. | Veronica (Shrubby Species) : |
| speciosa. | Armstrongi. |
| Thlaspi rotundifolium. | glauco-cærulea. |
| violascens. | Hectori. |
| Thymus azoricus. | lycopodioides. |
| carnosus. | salicornioides. |
| comosus. | pinguifolia. |
| micans. | Vicia orobus albus. |
| lanuginosus. | pyrenaica. |
| citriodorus argenteus. | Vinca acutiloba (Italian |
| rotundifolius. | periwinkle). |
| Serpillum album. | Viola biflora. |
| S. coccineus. | lutea. |
| villosus. | striata. |
| Townsendia Wilcoxiana. | Waldsteinia fragarioides. |
| Trifolium alpinum. | trifolia. |
| Veronica Bidwillii. | Yucca filamentosa. |
| caucasica. | f. bicolor. |
| Guthriana. | recurva. |



**PLANTS SUITABLE FOR LIMESTONE
ROCKERIES FACING FULL SOUTH.**

<i>Acæna argentea.</i>	<i>Cistus albidus.</i>
<i>Acantholimon venustum.</i>	<i>Clusii.</i>
<i>acerosum.</i>	<i>formosus.</i>
<i>Achillea rupestris.</i>	<i>Coronilla iberica.</i>
<i>argentea.</i>	<i>Cyananthus lobatus.</i>
<i>umbellata.</i>	<i>Cyclamen europæum.</i>
<i>Æthionema cordifolium.</i>	<i>repandum.</i>
<i>grandiflorum.</i>	
<i>Aciphylla Lyalli.</i>	<i>Dianthus Atkinsoni.</i>
<i>Allium pedemontanum.</i>	<i>Draba Maweana.</i>
<i>acutangulum.</i>	<i>bryoides.</i>
<i>Alyssum alpestre.</i>	
<i>argenteum.</i>	<i>Edraianthus pumiliorum.</i>
<i>pyrenaicum.</i>	<i>dalmaticus.</i>
<i>Androsace foliosa.</i>	<i>Erodium guttatum.</i>
<i>Anthemis Biebersteiniana.</i>	<i>Erysimum pumilum.</i>
<i>Anthyllis montana.</i>	<i>rupestre.</i>
<i>Antirrhinum Asarina.</i>	<i>Euphorbia capitata.</i>
<i>glutinosum.</i>	
<i>Artemisia spicata.</i>	<i>Fragaria lucida.</i>
<i>Astragalus argenteus.</i>	
<i>Tragacantha.</i>	<i>Genista pilosa.</i>
<i>Aubrietia purpurea variegata.</i>	<i>Geranium argenteum.</i>
<i>tauricola.</i>	<i>Endressii.</i>
<i>Borago laxiflora.</i>	<i>Helianthemum lavandulæ-</i>
	<i>folium.</i>
	<i>lunulatum.</i>
<i>Calamintha alpina.</i>	<i>Hypericum tomentosum.</i>
<i>Centaurea stricta.</i>	
<i>Cerastium Biebersteinii.</i>	<i>Linum salsoloides.</i>
<i>grandiflorum.</i>	<i>Lithospermum Gastoni.</i>
<i>Cheiranthus Allioni.</i>	<i>Lychnis pyrenaica.</i>

- | | |
|-----------------------------|-------------------------------|
| Micromeria Piperella. | Saxifraga lantoscana superba. |
| rupestris. | luteo-viridis. |
| | squarrosa. |
| Opuntia humilis. | tombeanensis. |
| Rafinesquii. | Vandellii. |
| Oxytropis campestris. | valdensis. |
| | Sedum spathulifolium. |
| Pelargonium Endlicherianum. | obtusifolium. |
| Phlox subulata. | Sempervivum arachnoideum. |
| Phyteuma comosum. | Chrysanthum. |
| Potentilla valderia. | Laggeri. |
| Primula Auricula marginata. | Pittoni. |
| marginata. | Verloti. |
| | Wulfeni. |
| Saxifraga Aizoon. | |
| cochlearis. | Veronica saxatilis. |
| crustata. | s. alba. |
| diapensioides. | pimeleoides. |
| lantoscana. | Vicia argentea. |



**PLANTS SUITABLE FOR NORTH-WEST AND
SOUTH-EAST ASPECTS.**

- | | |
|--|--|
| Actinella grandiflora. | Bryanthus erectus (<i>See special note</i>). |
| Acorus gramineus.
g. variegatus. | |
| Ajuga genevensis. | Callixene polyphylla. |
| Allium triquetrum. | Campanula Alliariæfolia. |
| Andromeda japonica.
fastigiata (<i>See special note</i>). | pelviformis. |
| tetragona. | thyrsoides. |
| Anemone narcissiflora. | Trachelium alba plena. |
| rivularis. | Cathcartia villosa. |
| sylvestris fl. pleno. | Clematis coccinea. |
| trifoliata. | Cortusa Matthioli. |
| Fannini. | |
| baikalensis. | Daphne Blagayana. |
| alpina. | Cneorum. |
| a. sulphurea. | Dentaria digitata. |
| apennina. | pinnata. |
| bracteata. | Dianthus Marie Parè. |
| Aquilegia alpina. | Napoleon III. |
| Stuartii. | Dodecatheon integrifolium. |
| Armeria cephalotes. | Meadia. |
| c. alba. | |
| plantaginea rosea. | Eomecon chionantha. |
| p. rubra. | Epimedium pinnatum |
| Arnebia echioides. | elegans. |
| Asarum europæum. | Ericas in variety. |
| Aster alpinus. | |
| a. albus. | Ficaria grandiflora. |
| | Funkia Fortunei cærulea. |
| | |
| Bellium bellidioides. | Gentiana Pneumonanthe. |
| Borago laxiflora. | verna. |
| | septemfida cordifolia. |

- Gentiana septemfida nana.
 Geranium Endressii.
 Haberlea rhodopensis.
 Hepaticas in variety.
 Herniaria glabra.
 Horminum pyrenaicum.
 p. album.
 Iris verna.
 cristata.
 Libertia ixioides.
 Linaria hepaticæfolia.
 italica.
 Margyricarpus setosus.
 Mentha Requienii.
 Mazus Pumilio.
 Mimulus cupreus.
 Morisia hypogæa.
 Myosotis rupicola (*See special
 note*).
 Ononis fruticosa.
 Ophiopogon japonicum.
 Philesia buxifolia (*See special
 note*).
 Polygala Chamæbuxus.
 C. purpurea.
 Polygonum Brunonis.
 Pratia repens.
 Primula ciliata purpurea.
 Balbisii.
 Clusiana.
 frondosa.
 glutinosa.
 Primula helvetica.
 involucrata.
 Kernerii.
 minima.
 pubescens.
 sikhimensis.
 viscosa.
 venzoi.
 Pulmonaria latifolia.
 Ranunculus amplexicaulis.
 alpestris.
 crenatus.
 parnassifolius.
 Seguieri.
 thora.
 Saponaria ocymoides alba.
 Saxifraga adscendens.
 ajugæfolia.
 affinis.
 aizoides.
 Andrewsii.
 apennina.
 aquatica.
 aspera.
 atropurpurea.
 atro-virens.
 biflora.
 bryoides.
 Bucklandii.
 palmata.
 cæspitosa.
 canaliculata.
 ceratophylla.
 Camposii.
 controversa.
 crocea.

<i>Saxifraga corsicana.</i>	<i>Sedum Aizoon.</i>
<i>densa.</i>	<i>spectabilis.</i>
<i>Debolensis.</i>	<i>Silene regia.</i>
<i>elegans.</i>	<i>argoa.</i>
<i>exarata.</i>	<i>stellata.</i>
<i>geranioides.</i>	<i>virginica.</i>
<i>Geum crenulata.</i>	<i>Shortia galacifolia.</i>
<i>G. dentata.</i>	<i>Sisyrinchium anceps.</i>
<i>G. polita.</i>	<i>bermudianum.</i>
<i>G. ovalifolia.</i>	<i>Soldanella alpina.</i>
<i>Guthriana.</i>	<i>montana.</i>
<i>infundibulum.</i>	<i>Swertia perennis.</i>
<i>incurvifolia.</i>	<i>Symphyandra pendula.</i>
<i>Kingii.</i>	<i>Wanneri.</i>
<i>leptophylla.</i>	<i>Synthyris pinnatifida.</i>
<i>Maweana.</i>	
<i>nervosa.</i>	<i>Vaccinium Vitis-Idæa.</i>
<i>pallida.</i>	<i>Veronica spicata alba.</i>
<i>pedemontana.</i>	
<i>spathulata.</i>	
<i>Stansfieldi.</i>	<i>Wulfenia carinthiaca.</i>
<i>tenella.</i>	
<i>Wilkommiana.</i>	<i>Zauschneria californica.</i>



**PLANTS SUITABLE FOR GROWING UNDER
TREES AND IN DEEP SHADE.**

- | | |
|-------------------------------|------------------------------------|
| Astrantia Biebersteinii. | Dentaria pinnata. |
| intermedia. | bulbifera. |
| minor. | Digitalis lutea. |
| pauciflora. | Diphylleia cymosa. |
| Anemone japonica alba. | |
| Andromeda japonica. | Epimedium pinnatum elegans. |
| j. variegata. | luteum grandiflorum. |
| Acæna Sanguisorba. | Eriogonum compositum. |
| Acorus gramineus. | sericeum (luteum). |
| variegatus. | longifolium. |
| | Eomecon Chionantha. |
| Boykinia aconitifolia (Saxif- | Epigæa repens (<i>See special</i> |
| raga aconitifolia). | <i>note</i>). |
| Bambusa nana (disticha). | Epilobium Dodonæi. |
| pumila. | angustifolium. |
| pygmæa. | a. album. |
| Carex japonica variegata. | Euphorbia Cyparissias. |
| pendula. | |
| Chelidonium majus. | Ficaria grandiflora. |
| Campanula macrantha (for | Fragaria lucida. |
| background). | Funkia grandiflora. |
| m. alba (for background). | ovata cærulea. |
| Chrysosplenium oppositi- | o. marginata. |
| folium. | alba marginata. |
| nepalense. | lanceæfolia. |
| Corydalis lutea. | |
| Cardamine latifolia. | Gaultheria nummulariæ- |
| trifolia. | folia. |
| pratensis plena. | procumbens. |
| Dondia Epipactis. | Geranium striatum. |
| Daphne Phillipi. | Gunnera magellanica. |
| | Geum rivale. |

Helleborus :		Polygonatum multiflorum.
atrorubens	} Specially adapted for growing under trees.	Polygonum Brunonis.
caucasicus		compactum.
c. abchasicus		cuspidatum (for back-
c. guttatus		ground).
c. punctata		Pulmonaria sibirica.
colchicus		latifolia.
cupreus		
fœtidus		Saxifraga : Geum varieties.
lividus		Megasea cordifolia.
olympicus		Sisyrinchium striatum.
odorus		Sedum grandiflorum.
orientalis	album.	
viridus	sexangulare.	
Helleborus niger major.	pallidum.	
n. altifolius maximus.	populifolium.	
Hepatica angulosa.	Stylophorum diphyllum.	
triloba.	Symphytum caucasicum.	
Hieracium aurantiacum.	tauricum.	
Horminum pyrenaicum.	Symplocarpus fœtidus.	
Iris fœtidissima variegata.		Thalictrum aquilegifolium.
		Tradescantia virginica.
Lythrum virgatum.		Tiarella cordifolia.
		Trillium grandiflorum.
Nepeta Glechoma (ground ivy).		Tussilago fragrans.
G. variegata.		
		Vaccinium Vitis-Idæa.
Orobus alpestris.		Veronica buxifolia.
		anomala.
Podophyllum Emodi.		
peltatum.		Waldsteinia trifoliata.

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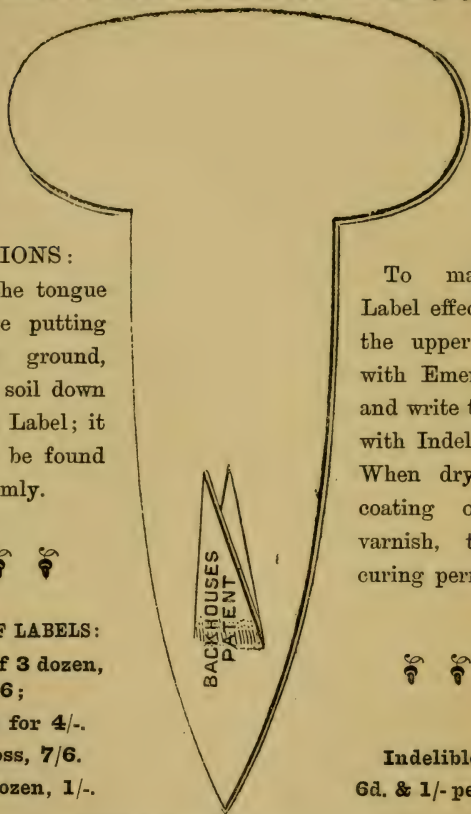
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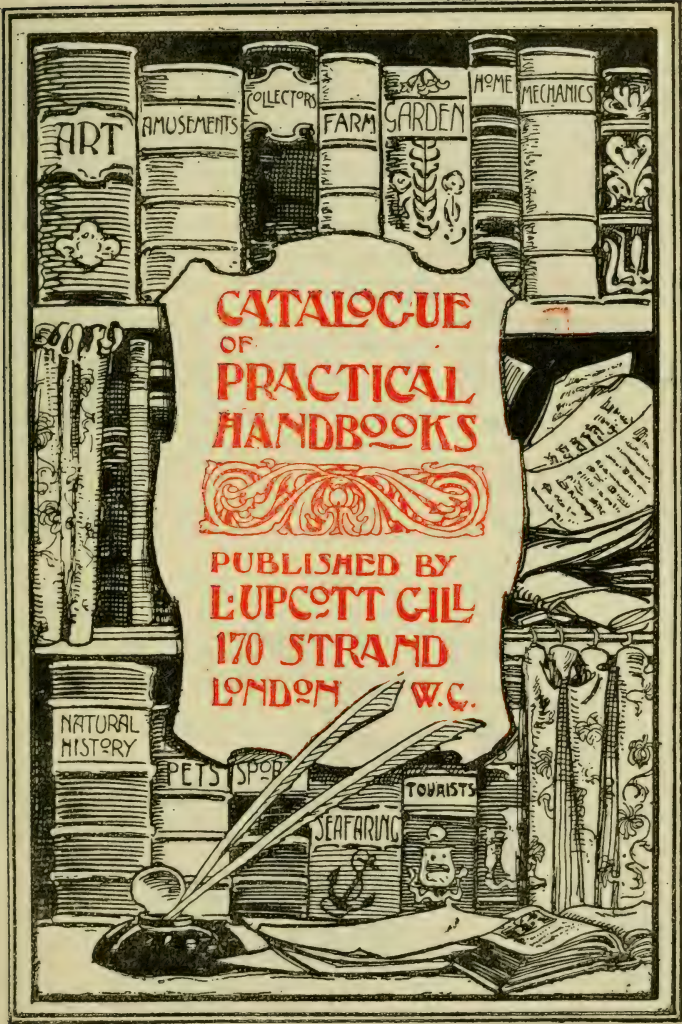
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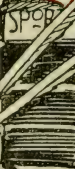
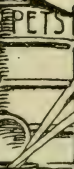
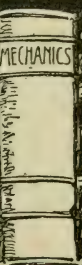
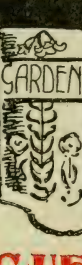
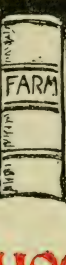
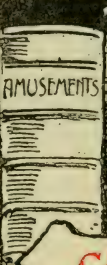
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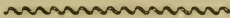
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