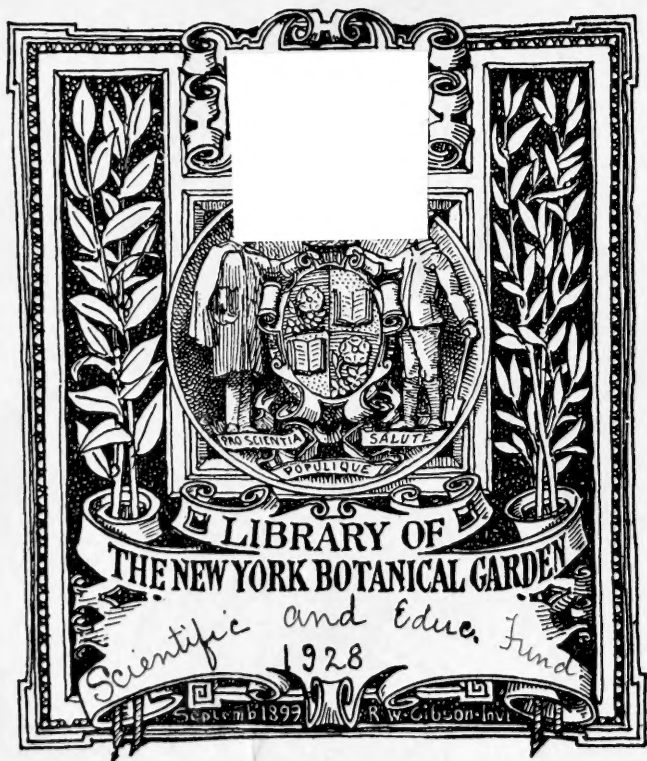


ALPINE
PLANTS

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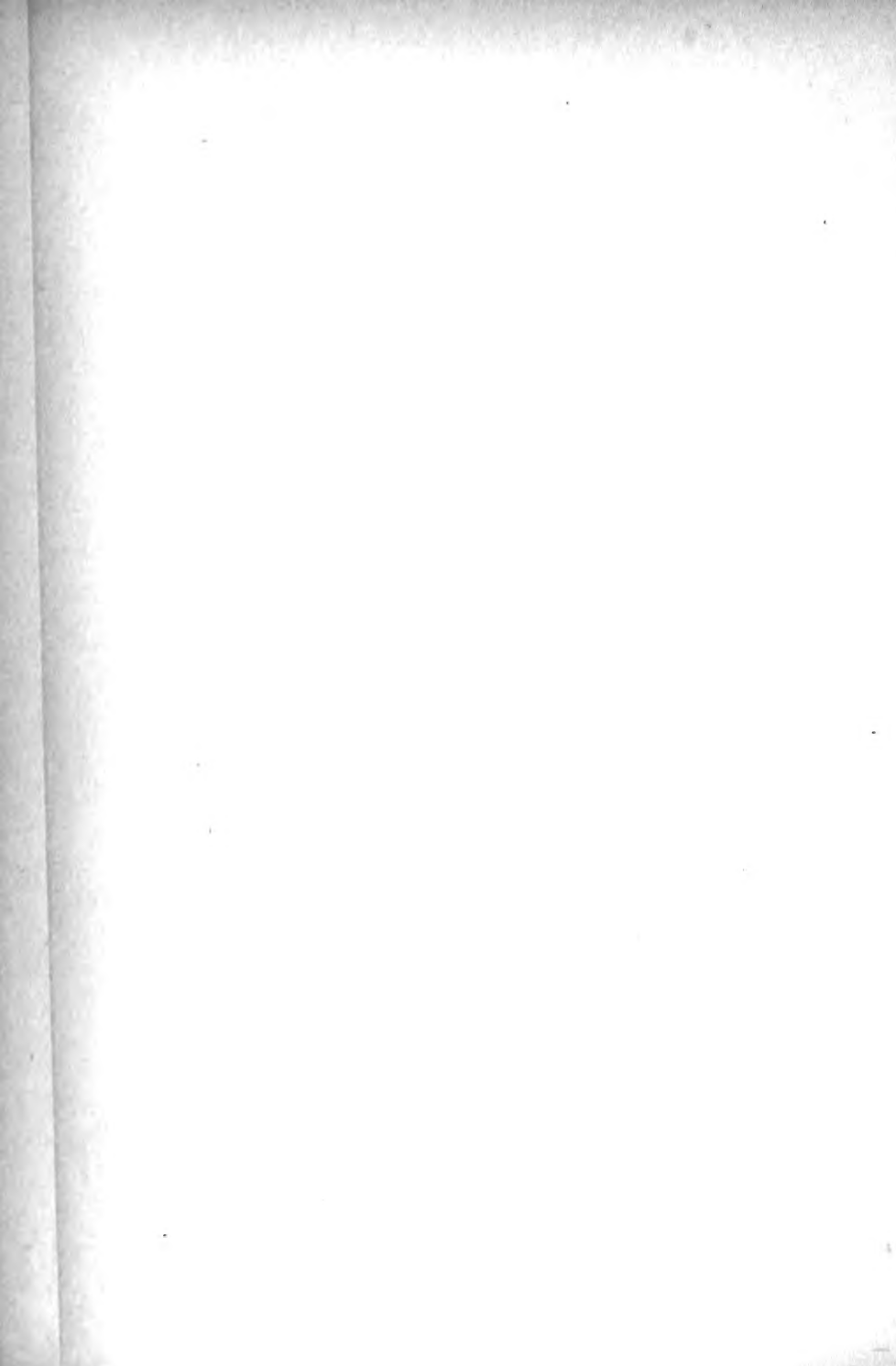
THE HOME GARDEN BOOKS





ALPINE
PLANTS

“THE HOME GARDEN” BOOKS







A STEEP ASCENT IN A DELIGHTFUL ROCK GARDEN

ALPINE PLANTS

BY

A. J. MACSELF

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NEW YORK

CHARLES SCRIBNER'S SONS

1923

11128

MADE AND PRINTED IN GREAT BRITAIN

DEDICATED
TO THE NATIONAL HARDY PLANT SOCIETY
AND TO ALL WHOSE AIM IT IS TO CULTIVATE
ALPINE AND KINDRED PLANTS

CONTENTS

CHAP.	PAGE
I	A SOURCE OF DELIGHT AND INTEREST FOR GARDENS OF ALL DIMENSIONS 13
II	GENERAL CHARACTERISTICS OF ALPINE PLANTS 19
III	ON THE CONSTRUCTION OF ROCK GARDENS 27
IV	ON WALL GARDENS 33
V	ON THE CULTURE OF ALPINE PLANTS IN SMALL GARDENS 39
VI	PROPAGATION OF ALPINE PLANTS: THE VARIOUS METHODS DESCRIBED 49
VII	ALPINE PLANTS IN POTS AND PANS 61
VIII	EASILY GROWN ALPINE AND KINDRED PLANTS. 69
IX	CHOICE ALPINE PLANTS FOR THE ROCK GARDEN OR ALPINE BED 113
X	SELECTIONS OF PLANTS FOR VARIOUS PURPOSES 191
	INDEX 199

LIST OF ILLUSTRATIONS

	FACING PAGE
A Steep Ascent in a Delightful Rock Garden <i>Frontispiece</i>	
Gentiana Farreri. A Superb Rock Plant of Recent Introduction	40
Æthionema "Warley Rose"	56
Gentians, Blue, in a Setting of Grass	80
1. Parochetus Communis (The Shamrock Pea). 2. Verbena Chamædrioides	104
Alpine Plants, Happy amongst Well-placed Rocks	120
Ramondia Nathaliæ	136
1. Veronica (Rock Speedwell). 2. Potentilla Fruticosa. 3. Iberis Sempervirens "Little Gem." 4. An Alpine Viola	168

ALPINE PLANTS

CHAPTER I

A SOURCE OF DELIGHT AND INTEREST FOR GARDENS OF ALL DIMENSIONS

TO claim that any particular plant or class of plants is possessed of charm or merit exceeding others is simply to display self-conceit, for it signifies the assumption that one's own taste and judgment is perfect, and denies others the right of originality or independence of opinion.

Ardently as I admire and love the dainty little gems of the alpine flora, I seek no quarrel with the devotees of the rose, the carnation, the wondrous orchids, or of any other flowers, but I rejoice in the knowledge that I share my love of alpine plants with a widespread and ever-increasing circle of enthusiasts; and with a firm conviction that the more information regarding alpine plants and their culture is disseminated, the greater will be their popularity, I set myself to the delightful task of telling the beginner, the novice, how these fascinating and charming flowers may be successfully grown in any and every garden.

It may be well at the outset to remark that whilst for convenience and brevity our title is alpine plants, the work will embrace many plants which, although not natives of the European Alps, are of kindred nature and generally adapted for cultivation as alpines.

Much has been written and might yet be written upon the merits of these plants, but the points I wish to emphasize are that in a given space of restricted area a greater range of varieties may be successfully grown than is possible with any other class of plants, and that even in a tiny town garden a collection of alpine plants may be accommodated that will include something to bloom every month of the year from January to December, whilst many are as beautiful and pleasing in foliage as in flower.

With abundance of room and ample resources at disposal, rock gardens may be created which shall constitute a source of endless enjoyment, but let me urge upon my readers to set aside the notion, unfortunately too prevalent, that vast expense must be incurred in building elaborate rockeries in order to secure success and enjoyment with alpine plants. It is quite possible to grow a thoroughly good collection even without a rockery at all, and it is this extraordinary adaptability of this class of plants to gardens of every conceivable size and character that constitutes its exceptional claim to the special attention of all who love gardening. But a real love of plants and of gardening is the great essential, for it is not he who, having wealth, submits to the whims of fancy or fashion, and orders a rock garden to be built and planted,

who will taste the sweets of satisfaction and enjoyment in its possession, but rather the enthusiast who learns to know plants individually, and procures here one and there another and installs them in the home of his own preparation, gradually acquiring a collection with every item of which he is fondly familiar. The making of any kind of garden should be a work of gradual development and evolution, not a task to be begun and completed in one hurried operation, and this applies perhaps more particularly to a garden of alpine plants, whether large or small.

Sites, situations and soils must of necessity govern to a great extent the selections of plants that should be included in a collection, but the character and capabilities of alpine plants vary so widely that some may be found adaptable to any locality and aspect, and furthermore, the comparatively small size of most alpines renders it a simple and inexpensive matter to provide little nooks and spaces for a variety of different subjects in such a manner as will ensure the happiness and well-being of all.

The erstwhile prevalent idea regarding a rockery was that it should be a heap of stones, clinkers, brick-bats, and rubbish in some out-of-the-way corner of the garden, under a spreading tree, or anywhere where nothing much would grow, the occupants generally comprising a few rough fern roots, and coarse-growing periwinkle, primroses, and German Iris. Small wonder that rockeries were looked upon with disdain and contempt.

Thanks to the output of gardening literature to meet

the demand for a better knowledge of plant culture, and to the enterprise and development of illustrated garden journals, a clearer conception of the possibilities of rockeries was obtained. The fine examples of rock gardens at Kew, and at the Edinburgh Botanic Gardens, served as object lessons to enthusiastic gardeners. Nurserymen who specialized in alpine plants, such as the great firm of Backhouse of York, Barr, Ware, Wallace and others, constructed some fine rockeries in private gardens, and by exhibiting model rockeries at the Royal Horticultural and other important shows they educated the garden-loving public to an appreciation of this form of gardening. In course of time it followed, and in some respects it may be said unfortunately, that rock gardening became a fashionable craze, which led to a mushroom growth of a crowd of self-styled experts who built rockeries anywhere and wellnigh everywhere.

The unfortunate element is that whilst a properly constructed rockery, planned with due regard to environment, will constitute a valuable feature of any garden, the mere insistence upon having a rockery simply because it is fashionable has in too many cases led to quite inappropriate association with formal gardening, and the work being sometimes undertaken by those who lack artistic as well as technical skill has resulted in the building up of rocks for display, the plants being added as trimmings to the structure, whereas rock-work should be utilized only to form a home for the plants. This is a point that must never be lost sight of, otherwise it were better to dispense with rock-work altogether and content ourselves

with growing alpins by one or other of the various methods described in this book.

Indeed, it is my desire and aim to give particular encouragement to the keen amateur gardener of modest means and restricted scope by clearly emphasizing the fact that with nothing more than a bed of well-dug and nourished soil, the drainage and texture of which may be improved by the incorporation of coarse sand, grit, lime-rubble or burnt earth and wood ashes, he may succeed in growing a comprehensive collection of the freer-growing alpins with no more than a few bits of porous stone against which the many kinds that hanker after a rocky stronghold may nestle and thus defy the scorching of our summer's sun heat. Furthermore, with such a bed judiciously planted so that the smallest and closest-growing kinds may not become overrun and smothered by the rampant trailers, the Alpine plantsman may enjoy a greater variety of form and blossom and a more extended season of interest than he could obtain from any other form of gardening that lies within his scope. If it seems that I repeat this claim to advantage on behalf of my favourites my plea shall be, is this not an advantage well worthy of reiteration ?

CHAPTER II

GENERAL CHARACTERISTICS OF ALPINE PLANTS

AS a stepping-stone to the successful management of alpine plants the first aim should be to acquire some knowledge of their likes and dislikes, their habit of growth, character, and peculiarities, and this we may do in a broad and general sense by studying the environment and conditions that prevail in their native habitats.

The true alpiners are of course mountain plants, but whilst some grow at high altitudes and in the bleak exposure of snow-swept peaks, others secure themselves in the sheltered nooks and crannies of the lower slopes, whilst many plants that are admirably suited for inclusion in our garden collections are plants of the valleys rather than the heights. For the most part alpiners are dwarf-growing, a large proportion being prostrate creepers, whilst some grow in the form of dense, compact little bushes, and some, whilst they cannot be described as trailers or creepers, nestle closely to the face of the rock or the soil, and spread themselves by means of stoloniferous or rooting stems and form close carpets of verdure, decked in season with gay short-stalked blossoms.

The fact that plants are seen covering the face of huge impenetrable rocks has sometimes led to the supposition that they require little or no soil or nourishment, and in endeavouring to provide "natural" conditions builders have fallen into the error of planting in a heap of stones with but an inch or two of soil in shallow depressions. The inevitable result is that the first drying wind parches the mere handful of soil about the roots, and a day's hot sunshine completes their destruction, and even if the succulent nature of the foliage and stems suffices awhile to maintain an appearance of life, the period will be of but brief duration, and the absolute destruction of the plant is an ultimate certainty.

A closer inspection of these curtains of the rocks will reveal the fact that the trailing stems can be traced back to a rootstock snugly tucked in some fissure or crack filled with rich compost, an admixture of pulverized stone and decayed vegetable matter, which has been washed down by descending torrents of melted snow, and if we could follow the fine root fibres in their tortuous windings and penetrations we should find that they travel an extraordinary distance until they reach a vast bed of soil behind or beneath the rocks that is never dried by sun or wind. Thus, we learn that the root system of an alpine plant is infinitely more expansive than its herbage, and wherever it is planted it must have a great body of soil for the accommodation of its roots, the real office of any stone being to shield the roots from parching influences, and also in some cases to provide a drained surface for sensitive crowns and herbage, for many alpiners which root

in sodden masses of decayed vegetation cannot endure stagnant moisture about their stems and foliage. This is pronouncedly so with plants that have downy or woolly foliage, as instanced by most of the Androsaces, and also with plants of rosetted growth like the encrusted Saxifrages, Ramondias, Lewisias, etc.

There are a certain number of very succulent plants that apparently require no more soil than will serve as anchorage to prevent them being blown from their *situ*, and which absorb practically all their nourishment from the atmosphere. Thus, we find *Sempervivums* massed on ledges of rock with nothing more than a thin coating of lichen and the humus of their own outspent and withered rosettes to root in. To establish a colony of these plants on a ledge of rock-work in the home garden is a simple matter. Get a shovelful of clay and a little cow manure, soak until they can be mixed together into a mortar-like paste, and throw it down with some force on the selected ledge. Whilst still wet press into it a few rosettes of the *Sempervivum* so that any roots they may have are embedded in the compost and the foliage just rests on the surface, and leave them to establish themselves.

Arenaria balearica, a plant of slender prostrate stems clothed with minute leaves, is another plant that will grow upon bare rocks of a porous nature. The stems fix themselves to the rock by means of tiny stem-rootlets which nourish the plant by extracting moisture from the absorbent stone. So closely does the plant grow that the surface of foliage reproduces every ridge, bulge and depression of the stone beneath it. *Veronica canescens*

is another daintily charming little plant of like character of growth, but both of these will grow equally well on a bed of sandy or stony soil. -

Androsace lanuginosa likes to get its roots into the crevice between two boulders, sending its trailing stems over a ledge to hang over a perpendicular face of rock. Thus, the silky foliage may shake itself free of moisture and bask in the heat reflected from the rock during the brief but strenuous Alpine summer.

A good many plants emulate the example of *Androsace lanuginosa*, and success is best achieved with these in British gardens when their roots are placed in a big body of soil, a perpendicular stone providing a shield for the roots and a background for the herbage.

Ramondias, and also *Haberlia rhodopensis* are frequently found wedged between closely-fitting rocks with their broad flat foliage nestling close to the perpendicular face of the rock. At such an angle no moisture can settle in the crown or "heart" of the plant, and in our home cultivation, whether we grow these plants in perpendicular, sloping, or flat positions, their strong antipathy to stagnant moisture must be remembered and guarded against. It is also a noteworthy fact that the *Ramondias* choose for themselves positions in ravines where shade from fierce sunshine is afforded.

It is a mistake to suppose that all alpine plants are found embedded in stones. The mountains do not ascend in uniform gradient like the Pyramids, nor are they composed of solid masses of unbroken and uncovered rock. There are many deep cavities which have gradually become

filled with rich vegetable mould mixed with flakes and particles of stone, and in these fertile beds, often of vast extent, we find a wondrous variety of plants. A large proportion of the fleshy or tuberous rooted plants will be included in these groups, and it is also to be noted that whereas the prominent and exposed rocks are clothed with prostrate and clinging plants, the hollows and stretches of which we are now taking note give us plants of erect and sometimes tall growth. This is explainable by two reasons. First, the shelter afforded by the surrounding rocks enables plants to grow which would, in more exposed positions, be torn and broken by winds; secondly, with the depth of rich soil available the surface of the soil becomes carpeted with an intermingled and tangled mass of grass and weeds, and it is only those plants that can push their way through this reeking tangle of rank growth and rear their heads in the free daylight and air that can survive. Two useful hints are thus conveyed to us, one being that in planting we should provide the taller growing Alpines with the warmer and more sheltered positions, the second that often a plant with thick, fleshy roots requires either deep planting or something in the way of a carpeting plant that will keep the soil cool in summer and comparatively snug and warm in winter.

I need not delve deeply into science to explain how alternate freezings and thawings with consequent expansion and contraction causes considerable portions of the face of apparently hard rock to become disintegrated and crumble away. When after the snow and frost-bound winter the sun thaws the snow and ice, causing avalanche

and rushing torrent, the loosened fragments of stone are carried down the mountain side, with the result that when their progress is arrested by some stout upstanding piece of rock they fill great pockets or hollows and form beds of loose stones mixed with the leaves and stems of plants that have been swept along with the rushing, tumbling avalanche. In a surprisingly brief period such beds of stone fragments become clothed with plants of various kinds but of a character all their own. The stone bed is always moist, huge volumes of water from time to time filtering through, but the water can never remain to become stagnant. Plants that would rot if planted in rich solid soil will fill the interstices between the stones with roots that absorb a tremendous amount of water, and the freshness of the foliage and profusion of flowers testifies to the comfort they find in their harsh bed of stones. Alpine plantmen have devised methods of reproducing these stone-beds, and of successfully cultivating therein many plants that fail under what might be considered more normal and favourable conditions.

One great difference between alpine conditions and those of our British gardens is that in the Alps the seasons of growth and rest are sharply divided.

At the beginning of winter the plants are covered with snow, but it is snow frozen dry. The plants are shrouded from daylight and buried deep in snow, but there is not enough dampness to cause the decay of a leaf. Thus, the plants remain throughout the long winter. With extraordinary suddenness the thaw sets in and in an incredibly short space of time the vast snows give way

before the blazing sun. What was a dry, frozen waste becomes water-sodden, and the heat of the sun makes the whole mountain side reek with vapour. Growth starts with a jerk, and the awakened plants are in full bloom in less time than those in our gardens occupy in forming their first leaves and buds. Contrast the conditions I have described with those our plants endure. Frequently growth continues until wellnigh Christmas. A spasmodic snowstorm or frost may chill the plants to rest, but in a few days temperature rises, or drizzling rain and wet fogs set in. In early spring a few sunny days encourage new growth, but likely enough severe frosts and heavy snows will follow, and thus throughout the whole winter there is little or no rest for the plants, but a series of delusions and checks, and worst of all the dampness of our average winter. To so manœuvre that these climatic disadvantages may be minimized and overcome constitutes the most difficult task that confronts the cultivator of alpine plants, but be not discouraged, my reader, much may be done with but little real trouble or expense, and success which amply repays the effort is obtainable, and to the real plant-lover even the difficulties to be fought constitute a source of gratifying pleasure and absorbing interest.

It is furthermore an encouragement to bear in mind that the natural species of these mountain plants are blessed with the instinct of self-preservation, so to speak. They have endured generation after generation the hardships that are the portion of Nature's wildlings, and have not been so perpetually favoured with congenial conditions as

the term would be interpreted by the gardener that their constitutions have been weakened, as has been the case with many subjects that have been for long periods cultivated under the most favourable conditions.

Therefore, like most living things in Nature's wild domains, the majority of alpine plants still possess in a marked degree a wonderful power of adaptability to changing conditions, and trying as our irregular winters are to many alpine plants that are directly transferred from their native homes to our British gardens, we find that home-raised plants become acclimatized and capable of thriving under the average conditions of their adopted homes.

It would certainly be a grave injustice to represent alpine plants as a whole as being a class that can only be cultivated with special skill and care, for the greater proportion are as easily grown as any plants that are worthy of garden accommodation.

CHAPTER III

ON THE CONSTRUCTION OF ROCK GARDENS

A WELL-CONCEIVED and properly constructed rockery is undoubtedly a feature of outstanding value and of perpetual interest such as any garden owner may desire. A heap of stones, ugly brick burrs, clinkers, and root stumps of trees is an abortion and abomination, not a rockery. Nor can it be considered clever or artistic conception to plank down between the iron railings and the bay window of a suburban villa or in the middle of a square or oblong flat of lawn grass a pretentious but miserably puny effort to reproduce some towering peak of the Swiss Alps. All efforts to build little Alps in gardens are puny and ridiculous, and when we begin talking about imitating nature and reproducing her most majestic handiworks we make ourselves pitifully childish. Let us be content to grow alpine plants for the enjoyment of their beauty and charm, and when we make a rockery let it be with no delusion that we are making a mountain. The form or contour of a rockery must depend upon its situation, its immediate surroundings, and its dimensions. A garden on a hillside, with water, and with informal groups or belts of trees, offers opportunities for

rock-work construction that may produce natural effect as distinct from incongruous mimicry, and many notable instances could be quoted where rockeries have been so conceived as to convey the impression that they have always been part of the landscape.

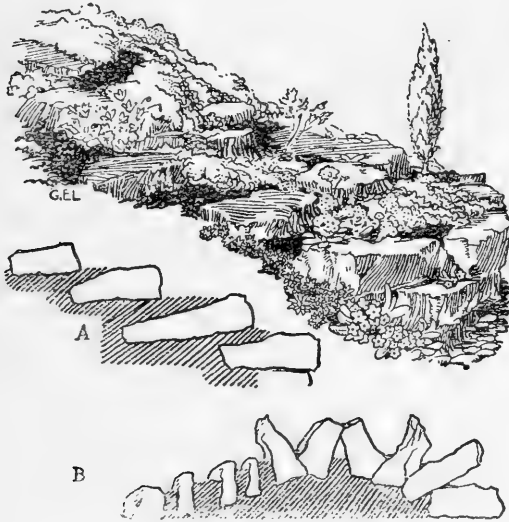
It would be futile to attempt to achieve a like result in a rectangular garden on the level, girt by brick walls or a neat and trim privet hedge, but nevertheless the owner of such a garden may desire to cultivate a collection of alpine plants, and there is no reason whatever why he should not gratify that desire, so long as he is content to study the cultural requirements of the plants rather than the pretentious display of stone.

Let the root run be the first consideration, taking it for granted that the best available site and aspect has been selected, and in a small garden that matter simply resolves itself into taking the best that is there. The root run must be expansive and deep. If on a slope there will be no difficulty regarding drainage, but if the rockery is to be a mound built up from a level base, or if the idea is to have it sunken below the surrounding level, attention must be paid to proper drainage. Stagnant moisture is poisonous to the great majority of alpine plants.

A mound of soil should be "crooked" at the base with a good body of brick rubble. A sunken rockery requires properly pipe-draining. The soil should be rich in vegetable matter or humus, made porous by an admixture of sharp sand, mortar rubble, or burnt earth. Rank animal manure is unnecessary, in fact undesirable. Whatever stone is used it should be of a porous nature. Limestone, and

ON THE CONSTRUCTION OF ROCK GARDENS 29

sandstone, red, grey, or yellow, are excellent, but flint, granite, or marble, being of a non-porous nature, are quite unsuitable. In the matter of arrangement of stones, one or two points should always be borne in mind. The first is, that to stick long, narrow pieces of stone to stand



ROCK-BUILDING.

The lower drawing (*B*) shows the wrong way to build. *A* gives an idea of the proper placement of stones. The top drawing indicates a rock garden during the first season's growth.

perpendicularly on end, is ugly and quite useless. Stones serve useful purpose when they keep the soil of a sloping bank from washing down during heavy rainstorms; also, when they protect the underlying soil from the scorching heat of midsummer sun, and from severe frosts during winter. It will therefore be apparent, that for both these

reasons, the stone will be of greatest use when lying on its broadest surface, and it is in such a position that it will be least likely to become disturbed and dislodged. Properly placed stones should require no fixing with cement, which, to my mind, it should be very seldom necessary to introduce to a rockery. A frequent error is to allow stones to simply rest on the surface of the soil. If the slope is fairly steep, the surface of the stone will also slope, so that any rain that falls upon it runs away toward the base of the mound, whereas it is required at the roots of the plants at the higher levels. Moreover, a stone merely lying on the soil provides harbour for slugs, woodlice, earwigs, and millipedes, which will emerge at night to take toll of the tenderest young growths of the choicest plants. A slight excavation should be made in the soil, sufficient to submerge half the depth of the stone and give it a slight tilt backward. Thus the stone will be held secure, and the rain that falls upon it will run behind it, to reach the roots of the plants in the pocket above. The soil and stones should be so manipulated that broad, flat areas are provided for *Campanulas*, *Primulas*, *Anemones* and other plants of free growth, whilst encrusted *Saxifragas*, *Sempervivums*, *Onosmas*, etc., should be wedged between narrow crevices in the stonework, taking care that the stones are not so broad that the roots have difficulty in reaching the soil behind. It will always be found easier and more satisfactory to plant these crevice plants as the work of construction of the rockery proceeds. When it is necessary to plant in settled rock-work, very small pieces of the plants must be inserted in the chinks, with the aid

of a flattened stick, taking care that they are pressed firmly home, with their roots well embedded in soil. The smaller the space at disposal for a rockery the less pretentious should be its design. To attempt to get elevations and deep depressions into a space of twenty or thirty square yards, is but to create a fiasco, but a gentle slope, with a few flattened pockets and slight undulations, will give us quite a presentable feature of the garden, as well as a comfortable home for the plants. Don't tuck the rockery in the shadiest corner of the garden, bring it out in the sunlight. A few boulders may easily be manipulated in such a manner as to provide a little shady nook for such plants as cannot endure the full power of the sun, and moisture-loving plants can be provided for by building a few stones around a slight hollow, and by incorporating fibrous loam or peat in the soil. Keep in mind when building, the fact that it will frequently be necessary to gain easy access to every part of the rockery for purposes of weeding, slug hunting, and affording other attentions to the plants. A rugged stone pathway may meander through a rockery of fairly large dimensions, but even small constructions should have flat stepping stones distributed at convenient intervals, so that there is no necessity to tread upon plants or to risk sprained ankles by attempting to balance on a treacherous footing of sloping stone.

The question of planting coniferæ and shrubs on rockeries is one that must be decided by individual taste, with regard, of course, to the area at disposal. The pigmies among coniferous trees are possessed of a character and beauty

all their own, and they add to the aged and established appearance of the rock-garden of adequate extent. A rockery of quite small size can scarcely be an appropriate place for trees, but there are shrubs of dwarf and restricted growth, which can, with advantage, be distributed over even a very small mound. The *Cistus*, and *Helianthemums*, shrubby *Potentillas*, *Hypericums* and *Veronicas*, especially those like *cupressoides*, *salicornoides*, *Hectorii*, and also *Bidwellii*, being capital substitutes for pigmy trees, and having the additional advantage of providing flowers in season, as well as tree-like growth and foliage. Ferns are indispensable associates of the flowering plants of the rock garden, and some of the ornamental grasses and reeds must be used, especially if the rock-work contains a pool, streamlet, or approaches the margins of a sheet of water.

Bulbs, too, of many kinds are admissible and desirable, but exception should be taken to Dutch Hyacinths, and even the ordinary bedding Tulips seem out of place on a rockery, although an occasional clump of one or other of the tulip species will appear quite at home. The planting of scarlet *Geraniums*, blue *Lobelia*, or double *Begonias* on rockeries cannot be tolerated, but certain annuals of dwarf or trailing growth intermix with the permanent occupants of the rock garden quite well. There are indeed true alpines of annual and biennial character which are extremely useful.

CHAPTER IV

ON WALL GARDENS

A WALL garden, when it is properly constructed, suitably planted, and well established, is a feature of exceptional interest, and great attractiveness; but a wall must be adapted for the purpose of growing plants if it is to be a source of satisfaction, for it must not be supposed that every garden wall may be made a wall garden. Plants cannot be expected to thrive on a bare, sunbaked, solid brick or stone wall, and it is horrible to see trumpery little troughs and pockets made of tiles and cement stuck at intervals along the face of a wall of solid masonry or brickwork. The handful of soil such ridiculous receptacles can hold is totally inadequate, for one dry day in summer will convert it into either dry powder or a hardened cake of baked clay.

One frequently sees a wall of rough stones or burrs packed together with little or no soil to fill in the crevices. Thus, drying winds cut through and shrivel to death any roots a plant may contrive to make during a period of wet weather, and ere long the plants are brought to the end of a miserable existence.

The ideal wall garden is one where the stones are backed

by a good bank of soil, and in the course of building, every layer of stones must be thoroughly well packed with soil, so that from the commencement the plants have a rooting medium capable of sustaining them until they eventually reach the main body of soil behind. Where circumstances prevent the utilization of such a bank of soil, the best



A WELL-CONSTRUCTED WALL GARDEN.

Only a few plants are shown, in order to clearly indicate the method of building.

alternative is to build a double wall, with a space of at least a yard between the two faces, this space to be filled with good, moisture-retaining soil, and the top levelled down and left uncovered to receive the full benefit of all the rain that falls.

On the sunny side of such a wall, a great variety of plants may be planted, including as examples, *Dianthus*

of many kinds, *Silenes*, *Sedums*, *Sempervivums* and *Saxifragas*, *Antirrhinum glutinosum* and *Antirrhinum asarina*, as well as varieties of *Antirrhinum majus*. *Cheiranthus*, the real "wallflower," in its varied species, makes itself as much at home on a wall as in a flower bed, and the *Linarias*, the *Fragarias*, and *Saponaria ocymoides*, will curtain the face of the stones with verdant foliage and gay blossoms.

On the shady side of the wall we may make much of *arenarias*, mossy *saxifragas*, *Lysimachia nummularia*, *Glaux maritima*, *Erinus alpinus*, *Codonopsis ovata*, and *Asperulas*, as well as *Acænas*, *Cotula squalida*, the *Thymes*, and many other shade-loving plants.

Androsace coronopifolia, *Ionopsidium acaule*, *Sedum cæruleum*, the charming little blue flowered *Sedum*, *Saxifraga Sibthorpii*, may all be established by scattering seeds in the chinks between the stones, where sufficient soil rests for the seedlings to obtain a foothold, and once established they may be left to take care of themselves and maintain existence by means of self-sown seeds. Many other plants, such for instance, as the wallflowers, *Antirrhinums*, the red *Valerian*, *Verbascum phœnecium* and *Globularias*, are best established in walls by sowing seeds, and during the process of building, the fleshy roots of *Tropæolum polyphyllum*, or of *T. speciosum*, may be snugly buried behind the stones, leaving their shoots to find their own exit and drape the rugged face of the wall with their lace-like growth and gorgeous blossoms.

There are many kinds of hardy ferns that are admirably suited for wall culture, where moisture and shade are

available, a number of the daintiest varieties of asplenium, such as *A. trichomanes*, *A. ruta-muraria*, *A. adiantum-nigrum*, are particularly appropriate, whilst crested *Scolopendiums* in infinite variety of tasselled ends and crimped edges, are full of beauty and interest. In the drier parts the oak-leaved *Polypodium* and also *Polypodium cambricum*, will produce charming fronds.

At the base of a wall, especially if a peat bed and some water can be provided, the royal fern *Osmunda regalis*, and its sister, *Osmunda palustris*, will give an air of richness to the wall garden, and so also will colonies of hardy *Cyclamen*, *Erythroniums*, *Dodecatheons*, *Orchis foliosa*, *Sanguinaria canadensis*, and the *Colchicums*, add charm and beauty to the scene.

During periods of severe drought, careful attention must be paid to the watering of a wall garden, and that is one point over which many garden owners go wrong. Too often a hose-pipe connected with a tap-main is trained on the face of the wall, and the water ejected with such force that much of the soil is washed from between the stones, laying bare many of the surface roots of the plants, and very probably dislodging entirely any young seedlings that may be germinating. The face of the wall streams with water, the foliage of the plants drips, and all looks well, but the whole effort has totally failed to soak the soil at the back, where the main roots of the plants are. Where a wall is sunk below the level of the ground and leans against a vast body of earth, there is not much need for watering, even in very dry weather, except in such instances as where the soil is a network of roots of big

trees. In the latter case, and also in the case of the double-faced walls already described, one of two methods will be necessary to ensure adequate moistening of the whole root run of the plants. The one method is to lay a hose pipe on the soil behind the stones, and allow water to run gently, not forcibly, for several hours, then moving as far as necessary, and allowing another portion to be thoroughly soaked, and so on, until the whole area of the wall garden is treated. The other method is to sink, at regular intervals along the top of the wall, bottomless barrels or sewer pipes, and fill these to the brim with water, re-filling as it sinks away. Always remember, that if a wall garden is to be watered at all, it must be done on a sufficiently liberal scale to thoroughly soak the ground to a good depth. This is only necessary when drought is so severe and prolonged that plants appear distressed, but one thorough watering will suffice for a long period, and is worth more than any number of mere surface waterings. Although it is advised that the top soil of a wall garden should be flat, and open to receive the benefit of all rains, it is by no means necessary to leave it bare. Many plants will thrive in such a position. *Centranthus ruber*, *Antirrhinums*, *Verbascums*, *Helianthemums* and *Cistus*, *Dryas octopetala*, and many kinds of *Dianthus*, will provide sheets of colour and effective foliage, and whilst the rain will drip from their foliage to the earth, their shade will help to check evaporation during hot weather.

The great advantage of even a short, low wall, is that in a narrow space that as a bed would take but a thin,

single row of plants, the perpendicular face of the wall can be made to accommodate scores of different kinds of plants, affording an ever-changing spectacle of beauty that will go on developing and improving year by year.

The best season for construction of wall gardens is early autumn, for at this season the plants may be placed in position as building proceeds, and will then have opportunity to well establish themselves and get their new roots well behind the stones before scorching summer's sun has to be endured.

Of course a wall situated in a cool shady spot can be planted during spring with every chance of success, but where circumstances call for spring planting of a wall exposed to midday sunshine it will be a wise precaution to erect some sort of temporary shading until the plants have taken good root hold.

CHAPTER V

ON THE CULTURE OF ALPINE PLANTS IN SMALL GARDENS

THE choice of aspect or exposure, the provision of a particular kind of soil or compost for some fastidious plant, and the exercise of care in planting, constitute the elementary principles of the cult of alpine plants, but although described as elementary because they must form the subject of our earliest studies and experiments, they must never be considered unimportant, for they must remain with us and claim our constant attention as long as we continue to cultivate. I am far more concerned about these three points than I am about the plan or extent of the rockery. First, because with a knowledge of these essentials we shall have already learned enough to enable us to avoid most of the common errors of rock-work construction; and, secondly, because with this knowledge at our command we may quite successfully grow an absorbingly interesting collection of alpines, even though we cannot possess a rockery at all; and I am convinced that among the thousands of owners of small gardens there must be a large proportion to whom such a proposition will strongly

appeal as opening up possibilities of a delightful hobby incurring no prohibitive initial outlay.

Dealing with aspect and exposure on broad lines, we may say that an open situation is best, for the majority of alpine plants love free circulation of air and exposure to sunshine. It is always possible to so contrive that portions



THE SHADY CORNER OF AN ENCLOSED TOWN GARDEN MADE INTERESTING BY TREATMENT WITH ROCK-WORK, HARDY FERNS AND SHADE-LOVING PLANTS.

Sunny corners may be dealt with in similar fashion, choosing sun-loving plants.

of our alpine quarters are rendered shady for the accommodation of a few shade-loving plants. Where stone is used, a big boulder or two can be so placed as to form a shady recess or pocket at their base, and where no stone is used the shade-loving plants can be given positions to the north side of some plant of erect or bushy growth. Even



GENTIANA FARRERI

A Superb Rock Plant of recent introduction



where a town garden is so hemmed in that sunlight is almost excluded, there are still possibilities, for with a selection of shade-loving plants of hardy constitution and free growth an otherwise dull and disappointing patch may be made both attractive and interesting.

We have Anemones of many varieties that thrive without the sunshine, and even under the shade and drip of trees. *Arenaria balearica* grows freely in damp, sunless spots. Quite a host of *Primulas* that would collapse if subjected to the fierce heat of summer's sun will grow and bloom with vigour in a walled-in town garden. *Ramondia pyrenaica*, one of the sweetest of alpines, requires a cool shady spot, and the red and purple varieties of *Saxifraga oppositifolia*, as well as many of the mossy *Saxifrages*, delight in shade. But so far as the selection of plants for shady or sunny, dry or moist positions is concerned, the classified lists provided in a later chapter will serve as a guide.

It has already been advised that the soil utilized in making a rock-garden should be rich in humus, but not with rank animal manure. It must obviously be the proper thing to plant the general run of alpines in soil largely consisting of leafy mould, decayed vegetable matter and porous grit, sand or stone chippings, for in their mountain homes the cracks, interstices and hollows among the rocks get filled with just this kind of compost, and it is in this that the plants find a congenial rooting medium.

A sandy soil is easily improved by the incorporation of leaf-mould, spent hops, lawn mowings and other humus-forming materials, whilst a stiff clay may be dealt with by first digging deeply and roughly in autumn, leaving the

upturned clods exposed to the influence of winter's frosts, and then by the liberal addition of sharp sand, lime rubble, limestone chippings and burnt earth, as well as such humus-forming material as is available. By February or March such a bed will have become sufficiently friable to rake down to a good surface tilth, and the planting of most alpines may then be undertaken, choosing of course a time when the weather is fairly open, and the soil in a condition to work comfortably. Never plant while any frost is in the ground, nor when the soil is so saturated with moisture as to be sticky and muddy.

With lighter soils autumn planting is to be preferred for the ordinary run of alpines, although a few plants that are particularly impatient of excessive moisture during their dormant season are best planted in spring. Such will be found to be indicated in the descriptive notes of the various plants. In other cases the best time for replanting is immediately the season of flowering has passed. Most nurserymen grow alpine plants for sale in pots, and such may be transplanted with safety at practically any season of the year except when the ground is either frost-bound or snow covered.

In planting pot-grown plants it is inadvisable to break the ball of soil at all. Simply turn out the plant by inverting the pot and tapping its edge, and insert in a hole just deep enough to bring the surface of the pot soil slightly below the level of the bed. Draw soil gently all round the plant and press very firmly with the hands. Firm planting must be the rule, for no plant roots well if the soil lies too loosely around it. When plants are lifted from the open ground

for transplanting it is always best to make a hole wide enough and deep enough to admit of their being spread out to their full extent. If one has large clumps to deal with of such plants as Aubrietias, Arabis, Saxifragas, Sedums or Campanulas, it is far better to gently pull them apart into comparatively small pieces with some roots attached than to cram the whole clump into one hole. The latter method generally means that some portion of the roots will not come into contact with fresh soil, and the result will be that parts of the mass of growth will die off. If the soil about the roots of the clump adheres very closely, soak it well, or even wash it away, so that the plant may be divided without tearing and breaking its roots. Lay the pieces so that the herbage lies resting around the margins of the hole with the roots spread out as well as possible ; cover these with soil, and after firming press a few small pieces of stone close in to the crown or collar of the plant. From a clump that originally covered about a square foot, a colony of divided pieces may frequently be made to spread over a yard of surface, and it is thus that the most pleasing effects may be obtained from alpines that are of a naturally procumbent or trailing nature, whilst we may by interspersing here and there single plants of erect or bushy growth, break up an otherwise flat appearance, and incidentally add greatly to the range of variety to be accommodated in a comparatively small area. Suitable plants for this latter purpose will be found among the white flowered Anthericums, Heucheras, Pentstemon species such as *P. heterophyllus*, *P. isophyllum*, and *P. Menziesii*, several kinds of *Campanula*, *Zauschneria californica*, and

indeed an almost endless variety of choice and beautiful plants.

At intervals a yard of space should be marked out for a *Cistus*, *Helianthemum*, or some other flowering shrub of moderate height, and it should be contrived that the soil in these positions should be mounded several inches above the surrounding level. Do not let the shrubs be very large when planted, for small young plants will establish themselves better. The bareness of the soil around them can be hidden by planting the delightful pink-flowered *Saponaria ocymoides*, the white *Asperula odorata*, or the yellow *Lotus corniculatus*, which will keep the spot well furnished until the shrub occupies the whole of its allotted space.

If some peat can be obtained a peat bed may be made in a partially shaded spot, or a few pockets dotted about along the shadier and cooler side of the alpine bed in which such subjects as *Soldanellas*, *Epigæa repens*, the hardy orchids, and some of the many beautiful British ferns may be grown. Many *Primulas*, too, like some peat in the soil, and it is necessary if we wish to have a good colony of hardy heathers.

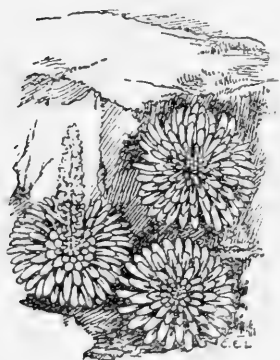
It is well, if sufficient fairly broad slabs of rough porous stone can be procured, just to roughly divide these various sections of our alpine bed ; for in addition to the useful purposes served by stone, as previously explained, these rugged divisions will be of considerable help in keeping one class of plant from encroaching on the domains of another ; but always remember that the plants do not want to be "walled" in by stones set up perpendicularly on edge. The great advantage about the method of cultivating alpines at present under consideration is that it may be

started in the smallest, most modest and economical way, and may be developed and improved upon little by little as time goes on. An odd stone may be placed where it will be of service at any time it happens to come to hand. A fresh plant can always be accommodated even if it means reducing something of which we have more than enough, and the bed can be extended from time to time as long as space for such extension remains.

Mortar rubble, burnt earth, coarse sand, broken oyster shell, etc., dug into the soil must be our substitutes for the rock that is lacking, and will provide the roots of the plants with the material in which they can make themselves at home.

Quite a large proportion of alpins tend in course of time to produce straggling and comparatively bare stems. This is a perpetuation of a natural habit that is a necessity to their continued existence in their native mountain home. We have already referred to the consequences of the spring thaw after winter's frost. Loosened soil, grit and stone, tumbling down from the heights above travels until progress is checked by some obstruction, and this obstruction is frequently a jutting rock or outcrop of stone, behind which grows a colony of some alpine plant. Here the descending grit and soil is heaped up, and were it not for the ability of the plants to throw out stems to a considerable length they would be buried so completely that they would be done to death. When, however, the *débris* covers the stems many of the tufts of foliage that dangled over the ledges of rock remain uncovered, the stems throw out fresh roots, and the result is a strengthened and extended colony. We may

take a hint from this that when transplanting pieces of an old plant that has spread itself by means of straggling bare stems, as is often found to be the case with Aubrietias, Dianthus, the alpine Phloxes, or Veronicas, instead of merely burying the roots and leaving the untidy barren stems to spread around, gather the tufted growths of young foliage together, and so plant that they only are left uncovered by soil. Thus we may secure a neat patch that will soon be



SAXIFRAGA LONGIFOLIA WELL
PLANTED BETWEEN ROCKS.

nourished by an entriely new root system. When an established clump begins to get straggly in growth, it is well to mulch it, packing loose gritty soil and stone chippings around and between the growths. The plants will be found to take on a new lease of healthy vigorous life after such mulching.

Plants of rosetted growth, such as the Sempervivums, the larger encrusted Saxifragas, and in fact practically all plants that can be separated to single crowns or growths with roots attached, are best dotted singly over a patch of soil or along a crevice between stones for by this means every single crown gets room for full development. Bulbous and tuberous rooted plants should for the most part be planted three or four inches deep, but rhizomatous roots, such as Irises, should not be buried, their crowns being left just visible on the surface of the soil.

Whenever planting is done it is advisable to water copiously in order to settle the soil about the roots. In autumn the one watering should suffice, but after spring planting it will be necessary to watch progress, for March winds sometimes have a very parching effect on newly planted alpine, and it may be necessary to give an occasional soaking during a spell of dry weather. Slug hunting will be a task that may frequently employ a spare half hour, and later in summer it may be necessary to do a little pruning or cutting back of plants that are growing too rampantly or getting untidy. Seed pods should be kept picked off, except, of course, in cases where it is desired to save seed for the purpose of increasing stock. With a good many plants, such as the alpine Poppies, some of the Primulas, Meconopsis, and the dainty little *Androsace coronopifolia*, it is necessary that seed should be saved, for the plants will frequently so exhaust themselves with blooming that they will not survive a hard winter. In some cases it will suffice to sprinkle the seed over odd vacant spaces in our alpine bed as soon as it is ripe, but it may with choice kinds be desirable to sow the seed in a pan or box of soil, transplanting the seedlings when large enough to handle.

Some species come true from seed, but garden varieties of such things as Primulas, Dianthus, Campanulas, etc., are prone to considerable variation. As to the disadvantage of this variation it may be considered either trifling or serious according to the character of the plant and the taste of the owner. Because a seedling from a dark blue flower happens to come paler in tint than its parent does not

necessarily mean that it is less beautiful. When a seedling is of a shade of colour that displeases the eye, it can easily be removed and replaced with a plant of favourite colour. Sometimes, also, we may by raising seedlings secure a new form that is worthy of propagation by cuttings or division, thus affording an added interest to our hobby.

There are quite a number of plants that, left to themselves, will scatter their seeds around and reproduce themselves in plenty, all that is necessary being to thin out overcrowded seedlings to give those most conveniently placed the best possible chance.

CHAPTER VI

PROPAGATION OF ALPINE PLANTS : THE VARIOUS METHODS DESCRIBED

BY DIVISION OF ROOTS.

THE majority of alpine plants may be increased by division of the root clumps, for it is a prevalent habit with these plants of diminutive stature or of creeping or trailing habit to make clusters of crown growths each with individual roots, although intertwining in a much tangled mass, or to spread out jointed stems that take root wherever a joint rests upon the ground. To quote instances of plants of this character we may mention the Saxifrages, Sedums and Sempervivums as of the clustered crowns type, and the prostrate Veronicas, Acænas, Arenarias, and Aubrietias of the stem-rooting type. Many of the Campanulas, too, are of tufted growth, the clumps parting into several portions with roots attached, and other plants of this character are the Armerias, Gentianas acaulis, verna and others, and most of the Primula tribe. All such plants may be lifted, carefully shaken to remove as much soil as possible, and gently pulled asunder, taking care not to pull the herbage from the root-stock, but so to separate the mass of

roots that the divisions come away with a proportionate amount of top growth attached.

The best season at which to divide alpiners must be decided by circumstances. The majority of plants have a definite season of growth, and a period of rest. If the rest is so complete that the whole plant becomes inactive for a season division and transplanting should take place just at the time of reawakening, for thus the separated portions will quickly take to the new soil and growth will proceed before decay can set in. There must, however, be exception to this rule in the case of certain plants that bloom first, then make new growth, ripen off, and go to rest. Take for instance hepaticas. These bloom quite early in the spring, the flowers bursting even before their leaves. Obviously, if the roots are disturbed just as activity commences the flowering season would be spoiled. Immediately after flowering, however, the real production of new growth and new crowns begins, and continues through the summer, ripening off in autumn, then resting until the flower heads rise in the early months of the new year.

It is therefore the proper thing to lift and divide hepaticas as soon as they have finished blooming, for that is the time when root activity is greatest. Quite a number of other plants should be treated in similar fashion, a little observation of habits sufficing to enable them to be picked out. Those plants that flower in autumn may for the most part be divided in early spring, because that will give them the benefit of a long period of growth before they have to endure the strain of flowering. Generally speaking late autumn is not a good time for dividing alpiners, because the

lacerated root-stock lies dormant in the soil during the wettest period of the year and is apt to rot before new roots are formed.

Strong growing plants may be replanted at the time of division, but plants with very fine growth, and those with fleshy, more or less tuberous roots are better potted for a while, because plants make fresh root more readily in a small body of porous soil with a pot around them than in the vast body of soil in the rockery or garden bed.

BY CUTTINGS.

The next method of propagation is by cuttings, and in most cases where growth emanates from a central stem, branching out with auxiliary growths, and also where stalked growths spring from a tuft, this is the method to adopt.

As examples of the former class we have the varieties of *Phlox subulata*, *Zauschneria*, *Lithospermum prostratum*, *Onosma taurica*, and *Cheiranthus alpinus*, etc. ; whilst the latter are typified by the *Aubrietias*, many of the *Campanulas*, *Viola cornuta*, *V. gracilis* and the *Mimulus* tribe. The *Helianthemums*, *Cistus*, *Muehlenbeckia*, are of comparatively hard-wooded growth, and the ripened shoots of the current season, stripped off with a "heel" in early autumn, root best placed round the edges of pots or shallow pans. The softer growth of the sub-shrubby plants should be taken in spring when the new season's growth is active ; and the other class, such as *Campanulas*, *Aubrietias*, should first be cut back to induce new growth, and the new shoots taken as cuttings when two or three leaf-joints have formed

below the central rosette. Our illustrations show the kind of shoots to select, and the manner of "taking" the cuttings, which should either be stripped off with a heel of bark from the main stem, or cut clean immediately below a leaf-joint. Do not tear leaves from cuttings, but cut them from the portion of stem that is to be inserted in the soil, using a



A BRANCH OF *CISTUS*, SHOWING AT *A* WHERE SHOOTS MAY BE SEVERED FOR MAKING CUTTINGS.

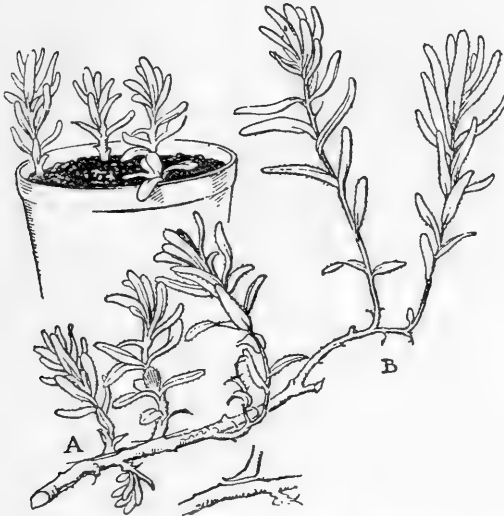
Left-hand: A trimmed cutting ready for insertion. *Helianthemum*s, *Veronica*s, *Zauschneria*, etc., may be thus propagated.

sharp knife, and taking care not to crack or bruise the cutting.

Use sandy soil, and press firmly to the base of the cutting. A loosely inserted cutting will never root properly.

It is rarely wise to subject cuttings of alpiners to artificial heat, a cold frame being, generally speaking, the best

alpine propagator. It is, however, a matter of importance to keep the cuttings in as still and steady an atmosphere as possible. Draughts, sun heat, and violent changes of temperature cause flagging, and in recovering therefrom energy is exhausted which hampers the process of rooting.

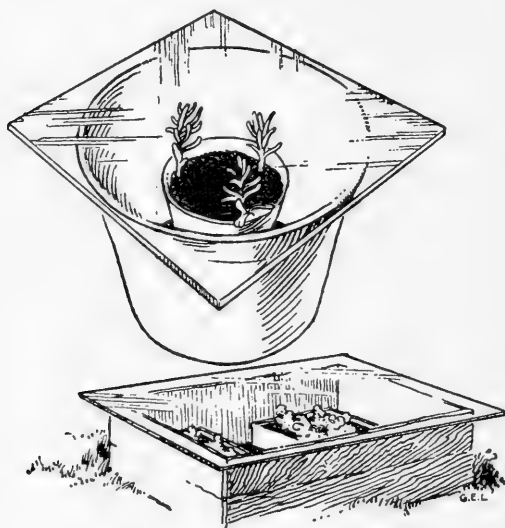


A BRANCH OF *LITHOSPERMUM PROSTRATUM*, SHOWING AT *A* SUITABLE SHOOTS TO BE STRIPPED OFF FOR CUTTINGS.

The longer shoots at *B* are not suitable, but should be left to flower.
Left-hand: Cuttings inserted round the rim of a pot.

The best place, therefore, for a propagating frame is a shady corner at the foot of a high wall, and the lights should be kept closed until it is seen that the cuttings are making good new growth. Where the accommodation of a frame is not available, or when only a pot or two of cuttings are to be dealt with, a suitable stillness of atmosphere can

be maintained by placing the pots of cuttings in a box a few inches deeper than the total height of the cuttings and covering with a sheet of glass, as shown in the accompanying illustration. With such an easily improvised propagator the choicest of alpiners may be reared.



PROPAGATING.

Handy substitutes for a propagating frame.

BY LAYERS.

Layering is a capital means of propagating many alpine plants. The stronger growing Dianthus, such as *D. plumarius*, may be layered after the same manner as carnations. Our illustration shows a suitable shoot trimmed and "tongued" for pegging down with a hairpin. "Tongue-

ing" is cutting half-way through the stem, starting behind a joint and bringing the knife lengthwise up to the next joint. It is from the slit thus made that new roots will appear.

Dianthus layered at midsummer should be sufficiently rooted for severance from the parent plant and transplanting



PROPAGATING DIANTHUS.

A, a layer, to be pressed tightly down and covered with sandy compost to the base of the foliage. The severed shoot may be again severed at the junction of the stems to make two cuttings.

or potting by September. Veronicas of the club moss type or of shrubby character, hardy Ericas, Polygonums, Thymus, *Nepeta Mussini*, and a good many other plants of like character may be layered by simply pressing a branch into the soil and placing a flat stone upon it to hold it in position (see illustration, p.56). By putting the layers down in autumn



PORTION OF A PLANT OF *VERONICA SALICORNIOIDES*, SHOWING A BRANCH LAYERED BY WEIGHTING WITH A FLAT PIECE OF ROCK.

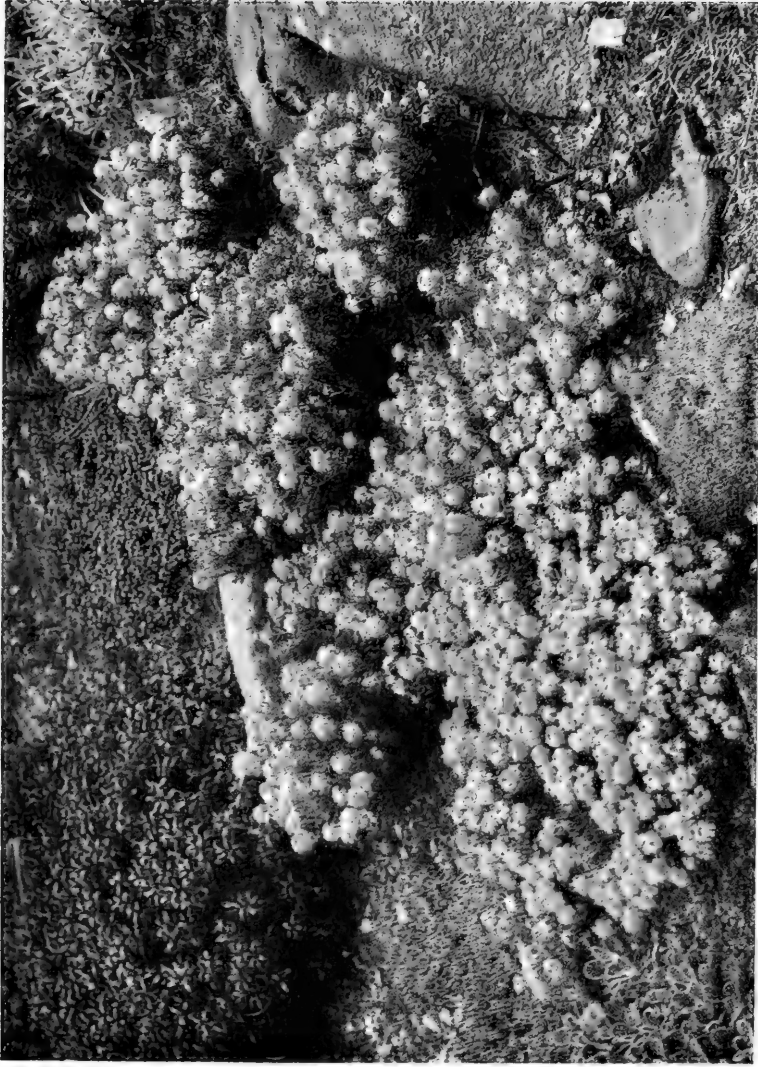
Many plants of bushy growth and woody stems may be propagated in this manner.

and leaving through winter well rooted young plants may be had ready for transplanting in spring.

BY SEED.

The production of plants from seed is Nature's own way, and with many plants it is the best method of propagation. With some it is the only really satisfactory way.

It must be admitted that in the case of plants that are given very much to variation of colour and habit, as, for instance, garden varieties of *Aubrietia*, some of the red flowered mossy *Saxifragas*, and varieties of *Phlox subulata*, we cannot depend upon seedlings being true to the variety,



ETHIONEIA "WARLEY ROSE"

and it is a case of selecting the best and discarding the inferior, but with very many well defined types and species the seedlings can be relied upon, and often, indeed, a plant raised from seed is superior to the rooted cutting or the divided root.

It is a very good general rule to sow seeds of alpiners as soon as they are ripe. This, of course, is in the summer time in the case of spring flowering plants, and autumn for the later blooming kinds, but if ripened later than September it will generally be better to defer sowing until early spring.

As with cuttings, so with seeds of alpiners, it is a great mistake to attempt to hasten germination by submitting them to artificial heat. Be content to raise in a cold frame or an unheated greenhouse, for seedlings of such hardy plants raised in high temperature start life weakened by unnatural conditions, become drawn and weakly, and are inevitably disappointing. Use light porous soil in well drained pots or pans. Wooden trays may be used for subjects that are known to be of rapid germination and growth, but a large proportion of the choicer Alpines are the reverse of rapid, and for such porous earthenware containers are far preferable.

One of the greatest difficulties to contend with in raising small seeded alpiners of slow growth is the tendency of the surface soil to become overgrown with moss or lichen. As a safeguard against this trouble, for trouble it is since the overgrowth checks and sometimes smothers the seedlings, it is well to dust powdered charcoal or a little finely powdered lime over the soil.

Never bury the seed deeply. Many alpine seeds are so

minute that they require no covering soil at all. Even the smoothest surface has crevices sufficient for the seed to repose in and to cover is to entomb beyond possibility of escape.

It is safer to water alpine seeds by immersing the pan or pot almost to the rim, so that the water may soak up through the drainage until moisture appears on the surface, than to water overhead. Even a fine-rosed can may dislodge seeds just throwing out their first hair-like roots ; and, moreover, it is difficult to judge just how much water to give to ensure the whole body of soil being moistened, whereas immersion ensures this.

Always sow seeds very thinly, especially the tiniest seeds, and always get the seedlings pricked out in the earliest stage it is possible to handle and separate them. By so doing a short-jointed robust growth is ensured, whereas by leaving in the seed-pan the plants become drawn, and their roots will be so entangled that breakage is unavoidable. Keep close and shaded for two or three days after pricking out, and from then onward give all the air possible on every fair day.

Never be tempted to enrich the soil in which seeds are to be sown with manure, and still more shun the use of chemical fertilizers. Every effort must be made to keep the soil sweet and clean. It is a wise precaution to sterilize the soil by baking, thus destroying grubs, germs of disease, and the seeds of weeds that may be present in the soil.

It will of course be necessary after baking to moisten the soil with clean water and allow to stand several hours before using.

Always see that the insides of seed pans and pots are quite clean and dry before use. A dirty pan or pot is not conducive to healthy growth.

With these few brief instructions upon the main features of propagation I must perforce content myself, and trust my readers will be content. To enter closely into the whole subject of propagation of alpine plants would necessitate dealing individually with family by family and sometimes genus, species and variety, for very many plants have little peculiarities that involve particular treatment, but I take it most of the readers of this humble work will be anxious rather to make a beginning with the simpler phases of alpine plant culture and the easier kinds of plants than to experiment with the rarities and most difficult among this extensive family.

With an insight into the general principles of good cultivation, the start may be made with confidence, and step by step the novice will gain experience and knowledge that will lead on to success and along the pathway which all must tread who would aspire to the title of expert.

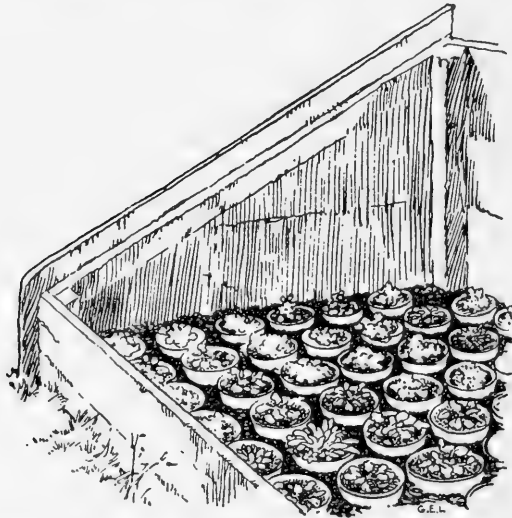
CHAPTER VII

ALPINE PLANTS IN POTS AND PANS

SIMPLE as the culture of the freer growing alpiners may be, and modest though their requirements are, it still remains possible that some who delight in them and would fain grow a collection of rock plants are deterred, perhaps because they fear the cost of such rockeries as are generally described, or maybe because penned up in the heart of a great town the tiny garden is overrun by destructive cats, and the plants are smothered with grime, smuts and sooty deposits that fall with every winter rain. Still, the enthusiast need not despair, for an ordinary garden frame covered with a glazed light will afford accommodation for quite a large number of alpiners that will thrive to perfection in pots and pans, the protection of the light serving to ward off the dirt and smuts of winter ; whilst in summer, when unrestricted fresh air is required, offending cats can be warded off by covering the frame with a screen of wire-netting.

Many amateur gardeners possess an unheated greenhouse, and whilst in summer the structure may prove useful for growing tomatoes, summer flowering plants such as Begonias and perhaps Chrysanthemums for autumn, the winter is

generally speaking a blank time, and during early spring there is nothing of interest in the greenhouse. In such cases nothing could be nicer, provided the house is situated where it gets the full benefit of daylight, than to fill it with a collection of alpine plants that will provide unlimited interest throughout the winter, and create a wondrous



A USEFUL LEAN-TO FRAME FOR THE ACCOMMODATION OF A COLLECTION OF CHOICE ALPINES.

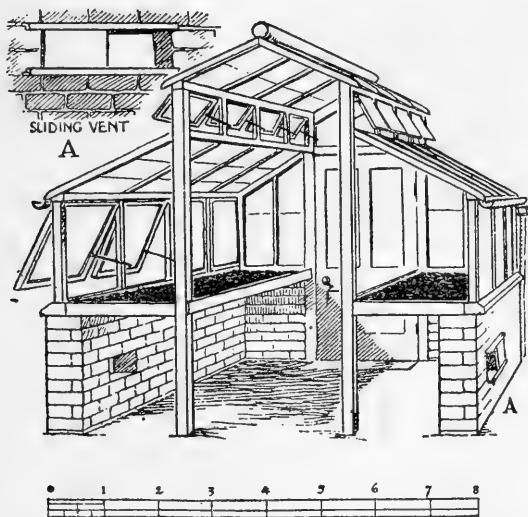
The pots are shown plunged in ashes.

show of glorious colour right through the early months of the year.

By the time space is required for planting tomatoes the alpines may be removed to the open, where they will grow quite happily until housed again after the autumn Chrysanthemums have passed.

This phase of alpine plant culture is one of such vast possibilities that it is well worthy of the provision of a special house, an excellent pattern being on the lines of that shown in our illustration.

Here the lantern roof affords the best means of ventilation, for the whole of the vertical lights running the entire length



A WELL-CONSTRUCTED ALPINE HOUSE, ADMITTING THE MAXIMUM OF LIGHT AND VENTILATION.

immediately below the ridge of the roof can be opened on the leeward side on windy days or both sides when the atmosphere is still.

It will also be noted that sliding shutters are fixed on the side walls below the level of the staging. These should be opened daily, and may be left open at night except in very

bad weather. Sidelights are also made to open, and should be opened when the weather is at all warm, the object of the alpine house being not to force the plants by artificial heat, but mainly to keep the foliage and blossoms clean, and to enable everything to be seen and attended to in comfort even in the roughest of weather.

Although, as has been shown, a house of the style of the illustration may be deemed ideal for the purpose, still it is by no means essential that it should conform in detail to that plan, the only urgent necessities being adequate means of ventilation, and plenty of light.

Whether we have a greenhouse or frames only the principles of cultivation of alpines in pots and pans will be the same. Pans differ from ordinary flower-pots only in shape, a pan having a greater surface area and less depth, whereas a pot is deeper than it is broad. Plants that are of close, compact, tufted or shrubby growth are more suitable for growing in pots, whilst prostrate growers, and such as root into the soil as they grow, will naturally thrive better when afforded the greater surface of the pan. Quite a number of trailing plants, such as *Saponaria ocymoides*, the *acænas*, *Arenaria montana*, *Nepeta glechoma variegata*, etc., make a very effective display when grown in pan pyramids constructed by setting a small pan or a pot inside a large one, and filling the intervening space between the sides of the smaller and larger with soil. By planting young pieces all around the whole quickly becomes furnished, making a conical mound of beautiful growth and bloom. The interior of all pots and pans must be perfectly clean, otherwise healthy growth will not be maintained.

Crocks must be liberally used to ensure drainage, a necessity even with those plants that in nature thrive in boggy places. Soil should be of good quality, but not over rich with manure. A good fibrous loam, beech or oak leaf-mould, sharp silver sand, some old mortar rubble or limestone chippings, together with a little wood ashes or small charcoal,



A POT-PYRAMID PLANTED WITH A PROSTRATE ALPINE PLANT MAKES A FINE PIECE FOR THE ALPINE HOUSE.

Many subjects may thus be grown in a small space.

will make an admirable compost for the majority of plants. Some few require peat, but these are generally indicated in our descriptive notes of the plants.

Pot firmly is a golden rule. Make free use of small pieces of porous stone to press into the surface soil between and around the plants. When watering give sufficient to thoroughly moisten the whole contents of the pot or pan, but during periods of rest be cautious, for many alpiners are

impatient of moisture when they are inactive. Regulate the size of pots or pans rather in accordance with the character of the roots than the dimensions of the stems or herbage. Many diminutive alpiners make far more root



A PRETTY GROUP OF ALPINE PLANTS FOR THE ALPINE HOUSE OR FRAME.

than top growth, but the roots must have reasonable space to maintain the plant in health.

Watch closely for slugs, woodlice and other insects, killing any that may be discovered—they frequently hide under the pots by day, and on that account it is wise to frequently move and rearrange the plants. Limbux or some other form of powdered lime sprinkled on the stage between the plants will help to keep insect pests at bay.

Whilst almost all alpine plants may be successfully grown in pots or pans, it is preferable that a selection shall be made

of the neater, choicer kinds that are not of too rampant growth, but that are interesting in colour and formation of leaf as well as bloom.

Mention is made in the descriptive notes of many plants



GENTIANA ACAULIS IN A PAN.

Note fragments of stone pressed among the crowns.

that are specially suitable for pot culture, but for ready reference a small selection is here given that may well be made an early choice ; and of course the collection can be augmented to any extent as warranted by desire or opportunity.

CHOICE PLANTS FOR THE ALPINE HOUSE AND FRAME.

- ACÆNAS in variety
 ACHILLEAS, especially the silvery leaved kinds
 ADONIS AMURENSIS and VERNALIS
 ÆTHIONEMA of several kinds
 ANDROSACE, practically all kinds
 ANEMONE, BLANDA, PULSATILLA, ROBINSONIANA and SYLVESTRIS
 ARENARIA GRANDIFLORA and MONTANA
 BRYANTHUS ERECTUS
 CAMPANULA, the dwarfer species and varieties
 CARLINA ACAULIS
 CHÆNOSTOMA HISPIDA
 CONVULVULUS MAURITANICUS
 CORYDALIS BRACTEATA, BULBOSA, NOBILIS and THALICTRIFOLIA
 CYCLAMEN, all the hardy kinds
 CYPRIPEDIUM, many kinds
 DAPHNE CNEORUM
 DIANTHUS, the smaller and choicer kinds
 DIONÆA MUSCIPULATA
 DODECATHEON
 DRABA
 EPIMEDIUM
 EUPHORBIA MYRSINITES
 FUNKIA, the variegated varieties
 GAZANIA
 GENTIANA, many kinds
 GERBERA JAMESONI
 HABERLEA RHODOPENSIS
 HELLEBORUS NIGER
 INCARVILLEA GRANDIFLORA
 IRIS, the smaller rhizomatous and bulbous species
 LEONTOPodium ALPINUM
 LEWISIA REDIVIVA
 LITHOSPERMUM PROSTRATUM
 LYCHNUS ALPINA, LAGASCÆ and VISCARIA SPLENDENS PLENA
 MECONOPSIS, all varieties
 MESEMBRYANTHEMUM
 MIMULUS LUTEUS ALPINUS, CORONATION and CHALK HILL GIANT
 MORISIA HYPOGÆA
 NEPETA GLECHOMA VARIEGATA
 OMPHALODES LUCILIÆ
 ORIGANUM DICTAMNUS and HYBRIDUM
 OURISIA COCCINEA
 OXALIS DEPPEI and ENNEAPHYLLA
 PHLOX, the choicer varieties of DIVARICATA and SUBULATA
 PRIMULAS, many kinds
 RAMONDIA PYRENAICA and NATHALÆ
 ROSCØA PURPUREA and CAUTILIOIDES
 SAXIFRAGA, especially LONGIFOLIA and PYRAMIDALIS, BOYDII BURSERIANA, GRIESBACHII and APICULATA
 SCHIZOCODON SOLDANELLOIDES
 SEDUM, the choicer kinds
 SEMPERVIVUM of best varieties
 SHORTIA GALACIFOLIA
 SOLDANELLA
 STATICE BELLIDIFOLIA and MINUTA
 THALICTRUM DIPTEROCARPUM
 TROPÆOLUM POLYPHYLLUM
 VERBENA CHAMÆDRIOIDES and VENOSA
 VERONICA, the dwarfer kinds
 VIOLA GRACILIS and PEDATA
 WAHLENBERGIA SERPHYLLIFOLIA
 ZAUSCHNERIA CALIFORNICA

CHAPTER VIII

EASILY GROWN ALPINE AND KINDRED PLANTS

MANY alpine plants, and very lovely ones, are as easily grown as any native weed, adapting themselves to varying soils, and making themselves happy in small enclosed town gardens, as well as in the greater freedom of the country garden. These, naturally, are more suitable plants for those amateurs who have neither great experience nor ideal facilities, than are the more difficult and exacting plants that must be provided, as far as possible, with an environment that encourages healthy growth. For the convenience of the reader the plants of the latter class are dealt with separately. The town gardener, handicapped perhaps by reason of his garden being situated where winter fogs and damp prevail, and where high walls or fences shut out much sunlight, will still find among this first group many good plants that will afford much pleasure. The novice, too, will be well advised to commence with a selection from the easily grown plants. If he is keen, enthusiastic, and observant, he will quickly become absorbed in the interest afforded by his hobby, and by gaining experience from

watching the habits and growth of his plants, and carefully noting the results of experiments, he will make progress that will spur him on to attempt greater things, and will doubtless add from time to time to his collection some of the choicer kinds that require more skilful management. Such is the hobby or occupation of cultivating Alpine plants, from the smallest beginnings we may progress step by step, acquiring knowledge and finding soul-satisfying enjoyment all along the way, and never coming to a stage of finality or a point beyond which further effort is futile, or further progress impossible.

Whilst it would be quite impracticable to attempt to describe individually every species and variety of plant which may claim to be embraced by our comprehensive title, it is hoped that in this and the succeeding chapter will be found an ample selection of plants for all seasons, all situations, and all tastes, and whatever may be said of plants omitted, it may at least be said that nothing has been included that is unworthy of space in the lists, or that will not prove useful in some, if not in all, gardens.

ACÆNA.—First in alphabetical precedence, and first in most hardy plant catalogues, the Acænas, of which there are a dozen or more species and varieties, are decidedly pretty, and useful. The foliage is always described as evergreen, and it is entitled to that description so far as concerns endurance throughout the year, but most of the Acænas are remarkable for other tints than green, and indeed, the colour effects of the dense carpet of foliage, and of the bright-hued spiny seed heads, constitute the charm and value of the genus. There is no difficulty in

the cultivation of *Acænas*. They thrive in sandy soil or among stones in any aspect, but rather prefer shade to full exposure to sun. An old plant pulled to pieces will furnish plenty of trailing stems, some with roots, and all capable of producing roots if laid in the soil, pressed firm,



STONE-PAVING AND STEPS WITH SUITABLE PLANTS GROWING BETWEEN THE STONES.

Acænas, *Arenarias*, *Thymes*, *Cotula squalida*, etc., are useful for the purpose.

and covered with sandy compost. *Acænas* are useful for growing in the cracks and crevices of stone paving, loose stone walls, or for the corners of a rough flight of steps. Another very good purpose they will serve is to carpet a patch of ground in which *Dodecatheons*, *Trilliums*, *Anthericum*s, or other bulbous or tuberous plants of more or less

sparse erect growth are planted. *A. microphylla* is one of the most telling, its spiny seed heads being of bright red, well set off by a close undergrowth of glossy bronze tinted foliage. *Novæ-zealandiæ* is another with metallic tints in its leaves, a silvery leaved variety being *adscendens*. A pot-pyramid of *Acæna* makes a delightful object in the alpine house or frame.

AJUGA.—Our native bugle flower and its purple-leaved variety, are sometimes useful for covering the soil in some damp shaded corner where little else will grow, but there are, among the less common *Ajugas*, plants of much beauty that deserve more prominent positions among our alpins. *A. genevensis crispa* is a quaint plant, with curled and twisted leaves, revealing shades of metallic colours verging into the rich glossy green of the ground colour. The flowers are blue. The silver variegated form of *A. reptans* makes a capital carpet plant, and also does splendidly alongside stone paving. With a few square feet of space covered with *A. reptans variegata*, and a few stems of *Asclepias tuberosa* rising up between the green and white carpet, the loveliness of the intensely rich orange-coloured *Asclepias* and the strangely uncommon form of its flowers will be brought irresistibly to notice. The *Ajuga* also makes a very effective and suitable undergrowth for a colony of *Orchis foliosa* or other spike-flowered hardy orchids.

ALCHEMILLA.—Both *alpina* and *vulgaris* are native plants, useful because of the winter beauty of their foliage. Spreading around the stalk, umbrella fashion, the lanceolate segments of the leaves are silky on the underside, and

a soft pea-green on the surface. They may be grown in total shade, but will thrive in sun so long as provided with plenty of moisture. Where it is desired to emphasize certain colour effects, a background or setting of *Alchemilla* foliage may be relied upon to achieve that purpose.

ALYSSUM.—There are at least a score species and varieties of perennial Alyssums, some of which, at any rate, should find their way wherever alpine plants are grown. *Alyssum saxatile*, and its improved variety *compactum*, must be voted worthy of inclusion in the best dozen plants for the rockery, whilst for beds without stones few plants can yield as much colour in a given space as a good patch of two year old *Alyssum saxatile*. A dry bank, a patch of gravelly or chalky soil, a wind-swept corner, or anywhere except a very wet, ill-drained position, will suit the plant, and its shaggy mass of golden yellow flowers will compel attention and admiration throughout spring and early summer. Even when out of bloom the grey-green foliage is beautiful. There is a good double flowered variety, and a pale lemon one named *citrinum*. The double one is best propagated by cuttings, but the others are very easily raised from seed, and if sown as soon as ripe the plants will bloom the following spring, but will be far more prolific the second and following years. Several other species of *Alyssum*, although quite tiny and perhaps meagre so far as flowers are concerned, are very effective by reason of the glistening whiteness of their foliage, which, by the way, is always whiter if the roots run among lime or chalk. *A. alpestre*, *condensatum*, and *mœllendorfi-anum* are three of these white-foliaged, yellow-flowered

sorts, while *A. spinosum*, which makes a branching woody shrub, has white flowers.

ANTENNARIA dioica tomentosa is a particularly useful plant for carpeting the ground under Irises, Anthericums, or any flowers of stiff erect growth. Its foliage is silvery white, and it spreads rapidly in almost any kind of soil. There are a few other *Antennarias* in cultivation, but this is probably the most serviceable.

ANTHEMIS.—The beauty of some of the dwarf *Anthemis* rests in their silver leaves and downy stems. They have yellow or white daisy-like flowers, and are of very easy culture, especially suitable for chalky soils.

ANTHERICUM.—These elegant, lily-like plants, with erect branching spikes of glistening white flowers, are included because they are never so beautifully effective as when thinly distributed over an area of ground carpeted with some close-growing plant with dark foliage, and such combinations are delightful either on the rockery or in a bed of alpine plants. The *Acenas*, *Arenaria balearica*, some of the prostrate *Veronicas* or *Campanulas*, make excellent carpets for *Anthericums* to grow through. All that is necessary is to plant young crowns about $1\frac{1}{2}$ feet or 2 feet apart in deeply dug soil and intersperse small pieces of the carpeting subject. *A. liliago*, and its form major, *A. ramosum*, and *ramosum Renarni*, are all good, while there are plants commonly named *A. liliastrum* which botanists tell us should be called *Paradisialia liliastrum* and *A. Hookeri*, otherwise *Bulbinella Hookeri*, which are equally beautiful by whatever name they are called.

AQUILEGIA.—The whole family of *Aquilegias* may be

enthusiastically proclaimed charming and exceedingly graceful plants, foliage, habit, form of flowers, and lovely colours being alike features of striking beauty. The tall-growing long-spurred hybrids, which are among our most popular border plants, are not quite the best for the rock garden or collection of alpines, but we have several dwarf species, most of which have conspicuously large flowers of bright rich colours, and are altogether well adapted for our present purpose, either as individual plants dotted among close-growing carpeting plants like *Arenarias*, *Sedums* or *Acænas*, or for massing in bold groups, the extent of which must of course be governed by the total area of the alpine garden. The *Aquilegias* like an ample root run in fairly rich, loamy soil, with a free admixture of grit or sharp sand. Home saved seed may be sown as soon as ripe, and the seedlings pricked off when an inch high. If more than one species or variety are grown, the seedlings may vary somewhat from the character and colour of the seed parent, but from the point of view of garden display this is of no material consequence. If, however, it is desired to raise a stock of a distinct species, true seed can generally be purchased from seed specialists. Roots three or four years old may be divided, but one rarely gets such vigour from divided plants as from seedlings. A few of the most serviceable species for the Alpine garden are :

A. alpina, a plant that grows to about a foot in height, bearing large violet and white blossoms. There is in cultivation a selected garden form named *alpina superba* bearing larger and more showy flowers. *A. flabellata* is white, and it commences flowering as early as April.

A. glandulosa is one of the very best of the whole genus. Its blossoms are very large, and the wing petals and spurs are of a rich shining blue, the fuchsia-like corolla being white. This plant invariably plays a prominent part in the rock garden exhibits at the Royal Horticultural shows at Chelsea at the latter end of May, but the flowering season extends throughout June, and frequently into July. Precocity is one characteristic of the species, *A. pyrenaica*, plants in sheltered nooks frequently opening blossoms before March has passed, and the display is maintained for fully ten weeks. The colour of the flowers is a pleasing shade of lilac, verging to lavender.

ARABIS.—The common type of *Arabis albida* is so rough and common a plant that it is a pity to waste space in a garden of limited dimensions upon it, when there are other more refined and less rampant kinds, which are just as easily grown. The double form of *albida* is certainly preferable, its stock-like spikes of bloom being quite pleasing, but even this is a coarse rough-growing plant, that should not be allowed to spread itself all over the place, to the detriment of neighbouring plants. The best method is to cut back the growths to the base as soon as flowering has ceased. New growth will break away immediately and the plant will present a tidier appearance, and the next crop of flowers come finer, than if the mass of growth is just allowed to go on spreading unchecked. *A. Billardierii rosea* is a dainty little plant of less coarseness than *albida*, and its small heads of pink flowers are of pretty colour. *A. blepharophylla* is smaller still, being only about three inches over all; the flowers are reddish purple. Another

quite small one as *A. procurrens*, with prostrate stems and small white flowers. *A. albida* has a rather effective variegated-leaved variety, which makes a showy patch of colour if kept in good form by frequent pruning, or by placing stones over any lengthening naked stems to encourage rooting, so that the plant makes a dense spreading mass. Another variegated arabis is a form of *bellidifolia*, so named because its foliage is somewhat like a daisy. *A. carduchorum* has yellow flowers, but so far as garden effect is concerned, it is inferior to *Alyssum saxatile*, or its double form.

ARENARIA.—Here we have the sweetest little carpeting plants, that cover earth and stones alike with a close velvety mantle of slender hugging stems thickly clothed with minute foliage, and thickly strewn, for a good part of late spring and summer, with tiniest white flowers that glisten like fairies' teardrops. *A. balearica*, the species to which this description best applies, should never be absent from a collection of alpines, if 'tis to serve no other purpose than to form a carpet for the spring snowflake, *Leucojum vernum*, the Dodecatheons, *Sisyrinchium*s, or a colony of hardy Orchids. All these, and many more plants of slender but erect growth, show themselves to infinitely better advantage over the living carpet of *A. balearica* than when the bare earth is seen between them. A clump of snowdrops or of the miniature daffodils will be preserved from mud splashes, and the lovely autumn *Colchicum*s and autumn *Crocus*es will show their full glory when allowed to break through the lace-like growth of this ideal foil to their white or coloured flowers.

But there are other members of this family not quite so absolutely flat to earth, but still small, neat, and very desirable, *A. verna*, *cæspitosa* and its yellow-leaved variety *aurea* being creeping carpeting plants, *A. grandiflora*, a comparatively large-flowered white, and *A. purpurescens* reddish purple. *A. tetraquetra* is choice, its white flowers reaching a height of about three inches, or maybe four in shady places, which, by the way, suit the arenarias, with the exception of the yellow one, as well as sunny positions. Propagation presents no difficulties, the plants dividing with the greatest of ease, and transplanting safely at any season except during severe frost or prolonged drought.

ARMERIA.—The Sea Pink, or Thrift family, contains a few plants of considerable attractiveness, and of greater interest than the common pink and white forms, *maritima* and *maritima alba*, albeit these have their uses as edging plants for gardens on sandy soils, where their tufts of grass-like foliage and globular heads of flowers make quite a good border line for beds where many more fastidious plants would fail. For seaside gardens the Thrifts are particularly useful. For rock gardening, however, we may preferably use the deep red variety of *maritima*, named *Lauchiana*, the greater size as well as richer colour of its flowers being superior to the common type. *A. cephalotes*, more properly called, according to botanists, *A. latifolia*, is still more effective, being larger and stouter in both leaf and stem, whilst its red flower heads are of double or treble the size of the *maritima* type. Another tall and strong growing species is *A. plantaginea*, of which

splendens is one of the finer forms. This plant has strong straight flower stalks, that frequently attain a height of two feet, surmounted by large spherical heads of rich pink blossoms. The foliage is broadened and bears some similarity to the narrow-leaved plantain, a circumstance to which it owes its specific name. But the most striking of all the *Armerias* is a garden variety named Bees' Ruby. This is a plant really worthy of a conspicuous place in any collection of alpine plants. Its large bright rose pink, or almost cerise, flower heads stand almost a yard from the ground, and are borne in great profusion for a lengthened period during the summer months. Even a single plant, established in a flat-surfaced pocket on the rockery, will produce a fine effect among the dwarfer or trailing plants around it, but to fully appreciate the charm of this giant thrift, a mass covering a yard or more of space should be seen in full bloom. It is then indeed a fine and very distinctive feature, and being among the easiest of plants to cultivate, it deserves widespread popularity.

ASPERULA.—The sweet woodruff, *Asperula odorata*, is a British wildling, but nevertheless is useful and effective for shady places overhung by trees, where the range of reliable subjects available is decidedly limited. The plant makes an abundant growth of prostrate green stems, the leaves being whorled at regular intervals along the angular stems. The tiny white flowers are borne in loose umbels, and the plant possesses a refreshing odour which is commonly likened to fresh-mown hay.

A. hexaphylla is a finer plant that has considerable

claim to attention. We do not usually rely upon the rockery for material for cut flower decorations, but this plant, which is certainly well adapted to rock culture or for planting in a shady portion of the alpine bed, furnishes a liberal quantity of slender wiry stems clothed with extremely elegant leaves, and surmounted by airy tremulous panicles of minute blossoms of purest whiteness, which are equal in decorative value, even indeed if not superior, to the ever popular and indispensable *Gypsophila*. *A. hexaphylla* spreads by means of underground stems, and these afford an easy means of increasing stock by division.

ASTER ALPINUS.—The mountain species of that wonderful and comprehensive family of perennials known as Michaelmas daisies is itself a summer flowering plant in our lowland gardens, but it is a charmingly pretty flower, and makes a fine patch of clear purple about six inches from the ground level. The starry flowers are large for a plant of such dwarf stature. A necessary attention with *A. alpinus* is to mulch with sandy soil at the beginning of winter, working the compost closely in between the growths. Roots will then form from the base of the stems, and by lifting and dividing these every alternate spring the stamina and vigour of the plants and size and substance of the flowers will be maintained.

AUBRIETIA.—Ever popular and extremely useful, the *Aubrietias* should never be omitted either from the rockery, the alpine bed, or else as edgings for herbaceous borders. With tufts of foliage at the ends of thin wiry stems, *Aubrietias* in a young state make neat little cushions of growth, which in spring and early summer are closely



GENTIANS, BLUE, IN A SETTING OF GRASS

covered with brightly coloured flowers. If, however, the plant is left to itself for two or three years, the wiry stems become considerably lengthened, with the result that the tufts of foliage dangle about untidily at the ends of a mass of naked, dead-looking stems, and the whole beauty of the plant is lost. Two methods, either or both of which may be adopted, will obviate this blemish, and keep the plants close and compact in growth, robust in health and prolific in their production of bloom. The first method is to cut back the plants to within an inch or two of their base immediately after flowering, and the second is to mulch with a mixture of grit, lime rubble and loam, passed through a sieve. This is about all the cultural information that needs be given, for *Aubrietias* are of simplest requirements, thrive in most soils, especially if wedged between stones on a well drained site, with a body of good soil behind them, and they may be propagated with ease, by division, by cuttings dibbled in a cold frame in early summer, or by seeds. The flowers, however, are very readily cross fertilized, and seedlings may be expected to vary considerably in shade of colour. Quite a number of named varieties are offered in any hardy plant catalogue, the colours embracing many shades of lavender, mauve, purple and blue, with a few pink and reddish shades.

CERASTIUM.—The mouse-ear chickweed, although a pretty enough plant with its frosted white foliage and snow-white flowers, is of so rampant a habit that it frequently becomes murderous toward other and less vigorous plants growing near by. Its only recommendation for small gardens is that it will clothe dry, steep

banks, in exposed positions, where many plants would not exist. The variety *Biebersteinii* is the best and most effective.

CHEIRANTHUS.—This is the botanical name of the Wallflower family, but the genus includes several perennial and small growing species, varieties and hybrids that are more suitably dealt with as Alpine or rock plants than is the familiar wallflower of cottage gardens. The yellow-flowered *Cheiranthus alpinus* and the orange *C. Allionii*, or *C. Marshallii*, another orange-coloured variety of hybrid origin, and also *C. mutabilis*, an interesting plant that changes the colour of its flowers, sometimes showing pale cream, sometimes dark yellow, and then perhaps bronze or purple, may all be given exposed, sunny positions on the rockery, or, if planted in a bed, should have plenty of lime rubble, burnt earth and small stones about their roots. *C. kewensis*, *C. linæfolia*, and a few other sorts of more or less mixed blood or hybrid character, are quite pretty and useful, and any of them may be propagated with ease by simply stripping off side growths with a heel, and inserting in sandy compost, August and September being suitable months for propagating. Established plants are greatly benefited by mulching in autumn with a mixture of road grit, mortar siftings, leaf soil, and a little fibrous loam. A very good plan is to plant in close company with each other plants of the kinds above named, allowing them to seed, and scattering the seeds, as soon as ripe, among the stones of the rockery or in the chinks of a roughly constructed stone wall, the latter position making an ideal home for all the *Cheiranthus* and their near

relatives, the *Erysimums*. From such seedlings one is practically certain to obtain quite a number of variously coloured crosses, some of which will very likely be sufficiently distinct and pleasing to justify propagation from cuttings.

CHRYSANTHEMUM.—Whoever loves a daisy, and surely that includes all who have a love for flowers at all, will be charmed with the simple chastity and beauty of some of the diminutive mountain species of this wonderful and extensive family. Within the genus *Chrysanthemum* we have daisies of every size, from that of the white-flowered *C. caucasicum*, which grows no larger than Burns' "Wee modest crimson-tipped flower," to the great blooms of the giant forms of *C. maximum*. The latter, of course, are plants for the border, but there are quite a number of miniatures that are ideal for the alpine collection. *C. argenteum* has silvery leaves as well as charming daisy flowers, other sorts for our purpose being *C. alpinum* and *C. arcticum*. Propagation by cuttings may be effected either in autumn or early spring.

CORYDALIS.—*Corydalis lutea*, an old favourite, with fern-like foliage and yellow flowers, may be seen growing between the stones of old walls, in moist, shady places in many a cottage garden, and it is a plant of considerable beauty and usefulness for such damp, sunless situations, being an extraordinary plant for continuity of bloom. This is the simplest and easiest member of the genus, but several other species of fumitory, as the *Corydalis* are called, are extremely beautiful, and well worthy of pot culture or some little winter protection. These choicer kinds will be dealt with in other sections of this book.

COTULA SQUALIDA.—This is a pretty little cut-leaved trailer, not unlike the *Acænas*. It hails from New Zealand, but is a useful and pretty plant for shady situations or for the crevices of stone paving.

ERYSIMUM.—These are small species of wallflower, first cousins, perhaps, of the *Cheiranthus*, dwarfer and smaller in bloom, but hardy and very free flowering. The colour of the flowers is yellow, generally pale and clear, but darker and richer in one or two species. There is an Armenian species named *purpureum*, with purple flowers, but it is rather uncommon, *pumilum*, *rupestre*, and *ochroleucum helveticum* being the more prevalent kinds. *Thyrsoideum* has whitish foliage, and *pumilum*, the dwarfest, is sweetly fragrant. Gravelly or sandy soil suits the *Erysimums*, and they will thrive on stony banks where many things would perish for lack of nourishment.

EUPHORBIA.—Of quite distinctive character, very effective in foliage and quaint in floral arrangement, the *Euphorbias* are so attractive that they are sure to arrest the attention of even those of our visitors who are not keenly interested in rock plants. The stalkless leaves are in most species of thick, succulent appearance, and are arranged at precisely regular intervals and definite angles all along the thick flesh stems. Several are glaucous, almost to the extent of being blue, whilst a few are green, with conspicuous white or creamy mid-ribs. The flowers are mostly of a greenish amber or chrome yellow, arranged in flat umbels on short stalks. The actual flowers are backed with symmetrical leafy bracts, which constitute one of the several unique characteristics of the genus. *E. cyparissias*

is a beautiful species, evergreen, and gay in spring. *Myrsinites* is prostrate, beautifully glaucous in stem and leaf, and *pilosa* major grows erect to a height of fifteen or eighteen inches. In spring stems and foliage, as well as bracts, are of a pale yellow hue, but during summer and autumn the plant takes on reddish tints. *E. Wulfenii*, although a large plant, growing erect to a height of three feet, is peculiarly adapted for prominent positions on a rockery where a single bush will serve as useful a purpose as a pigmy conifer or a flowering shrub. It has long, tapering, dark green foliage, with thick light ribs, the whole plant being covered with a glaucous film. *E. epithymoides* is another desirable plant, growing over a foot high, the yellowish flower heads and bracts of which ultimately assume rosy and metallic tints.

Euphorbias may be propagated from cuttings during summer, selecting basal growths about the length of the little finger. When severed from the plant, the profuse sap, which is milky in appearance, exudes so freely that the cutting would be quickly exhausted if left lying for even a short time. To obviate this it is prudent to dip them, immediately they are cut, in a saucer of either powdered lime or charcoal.

GENTIANA.—If I mistake not the majority of my readers would be both surprised and disappointed were the gentians missed from this chapter, so wonderfully popular are these plants, which include flowers of the richest and brightest of blues, the rarest of colours in a fair degree of purity to be found in Flora's kingdom. Be it far from me to disparage these lovely flowers, or to in any way discourage

their devotees, but candour demands that I should express the opinion that the more prudent classification for the best and most prized species and varieties is to include them in the chapter on choicer plants requiring rather more care than the general run of free-growing subjects. The chief reason I have to offer is that the gentians are, many of them, plants of very dwarf stature and close compact growth, and as they require a liberal root run, with abundance of moisture during their growing period, but are somewhat impatient of excessive moisture in their crowns during winter, there is some risk involved in planting them near by plants of a rambling, spreading and quick-growing character, where they may suffer from smothering or choking. Whilst, therefore, it is by no means my desire to suggest that even the novice should omit gentians from his collection, I prefer to recommend that they should be associated with the smaller and choicer subjects, and with that intent details in regard to the many fine kinds available are included in the succeeding chapter.

GERANIUM.—There is scarcely a place too dry or a soil too poor to admit of the cultivation of some of the hardy herbaceous Geraniums, the plants that are really entitled to the name that has been usurped by the zonal Pelargonium of the greenhouse and formal summer bedding. The Geraniums, or Cranes' Bills, are of strong, luxurious growth, with generally prettily cut leaves, sometimes red stalked, and in some cases covered with silvery tomentum. Those possessing the last-named feature are less vigorous, but still by no means delicate or weakly, their one serious objection being to dripping wet, especially in

winter. *G. argenteum* is one of the silvery leaved kind, and *G. cinereum* another. *G. grandiflorum* is a blue-flowered plant of much beauty, and *G. Endressi* is a very fine rosy pink with dark veins. *G. sanguineum*, a bright red species, has also both pink and white forms, all of them being charming plants capable of making a delightful display throughout summer and autumn. Two double-flowered varieties, *G. pratense flore plena* and *pratense alba plena*, purple and white respectively, are of upright, fairly tall growth, and their flowers, borne on stiff, straight stalks, are both showy and more durable than the singles. In all, there are close upon three dozen species and varieties of the genus, those named being a few that may be planted with confidence in any rockery or alpine bed. Propagation by division is a simple matter, and the plants increase in size very rapidly.

GEUM.—This is another family of very easily grown plants, possessed of elegance of form and brightness of colouring, and having the additional good quality of being very prolific and continuous in regard to flowering capabilities. The Geums have effective, fresh-looking and very persistent foliage, and a colony of established plants is attractive throughout the year. The majority of the species produce their flowers on fairly long, practically erect, and generally branching stems, and are light and graceful, either in the garden or in a cut state.

There are vivid scarlets, rich orange, bright yellow, and reds of various shades, some double flowered, but the larger number singles, simulating in form and appearance the blossoms of the strawberry. The best positions on the

rockery for geums, which, by the way, are seen to best effect when planted in groups of not less than half a dozen, are the fairly broad areas of soil on flat or comparatively level surfaces, for although very good drought-resisting plants, they do not develop fully when too closely cramped between stones. On the Alpine bed the geums are specially useful. Propagation may be effected by division of roots during autumn or spring. Seed also germinates with ease, the plants flowering the second year. *G. montanum* and *G. reptans* are beautiful yellows, the latter being an uncommon and very choice plant that throws out strawberry-like runners. *G. chilœense* and *G. miniatum*, which is really a variety of *chilœense*, are deep rich orange, *G. Helldreichii* being another orange-flowered variety of hybrid origin. *G. coccineum* is of geranium scarlet, its double flowered form being an excellent variety, but "Mrs. Bradshaw," a strong-growing, large-flowered, semi-double, has attained a foremost position as the best of the scarlets. Yellow and orange varieties of similar form and character to Mrs. Bradshaw have of late years come forward and attained popularity, but there are quite a number of other pretty varieties, descriptions of which are to be found in any good hardy-plant catalogue.

GLOBULARIA.—Like double daisies, but with flowers of soft shades of blue, the Globularias are neat little tufted plants that tuck themselves into tight little nooks and crevices between the stones of a rockery, and in a quiet way make a pleasing show for two or three months during the middle of the summer. They are quite easy to grow, and may be readily increased by division,

GYPSOPHILA.—It is not the ever popular *Gypsophila paniculata* which concerns a book on alpine and rock plants, but a few dwarf or prostrate species that will cover a good area with glaucous or light green foliage, and produce a goodly mass of minute airy flowers of white, or sometimes delicate pink flowers. Lovers of chalk, the *Gypsophilas* are particularly useful in those places where a surface of stony gravel rests upon a chalky subsoil. The one thing *Gypsophilas* strongly object to is disturbance of the roots when once they have established themselves. Raising from seed is the best means of propagation, and the seedlings should either be planted in permanent quarters when quite young, allowing ample space for spreading, or they should be potted until required for planting out. *G. prostrata* and *G. repens* are both white, the latter having a pretty pink variety named *repens rosea grandiflora*. Another pink-flowered plant is *G. mangini*, while *G. ceras-tioides* is a particularly good plant of close-tufted growth, with unusually large flowers which are white, prettily veined with pink.

HELIANTHEMUM.—There are quite a number of small, either compact or trailing flowering shrubs, that are as truly Alpine plants as are the sedums and saxifragas, and among them the *Helianthemum* is certainly one of the most charming and effective. In growth, the *Helianthemum* is not unlike the thyme of the kitchen herb border, slender, wiry, semi-prostrate stems being clothed with small, tough leaves, sometimes of a bright, glossy green, and in a few cases covered with a silvery or grey tomentum. The common name of the plant is "Sun Rose," and there is

good ground for such a name. The blossoms are just like miniature single roses, and they thrive and flower best when well exposed to all the sun that shines. The *Helianthemum* makes a great amount of roots compared with the extent of its branches, and whilst the little bush likes to be perched over a prominent rock, where it gets hardened and toughened by sun heat and unchecked winds, its roots will ramble through a yard of soil to draw moisture from beneath the protecting boulders. Naturally, such a plant is rather impatient of root disturbance, and it is well to plant while young, from pots, and then leave alone, that the plant may develop into a spreading bush. Cuttings stripped off with a heel, choosing shoots about $2\frac{1}{2}$ inches to 3 inches long, will root in a sandy compost under a bell-glass or hand-light, or lower branches of an old-established plant may be pressed into the ground and held by a stone as shown in the illustration of *Veronica salicornoides*. If this is done in early autumn, the stems will have thrown out good roots by spring, and the branch may then be severed from the parent plant, lifted with the roots intact, and immediately transplanted to permanent quarters. Of species there are yellow, pink, red and scarlet flowered, whilst hybrids and garden varieties further extend the range of colours. Double-flowered varieties are also available, and pure white forms with conspicuous golden anthers are very effective when grown near the brightest reds or scarlets.

HERNIARIA.—The chief use of *Herniaria glabra* is its suitability for carpeting the ground between erect growing plants. *Iris reticulata*, *Orchis foliosa*, the smaller fritil-

larias, *Uvularia grandiflora*, *Colchicums*, and many other flowers that grow up in individual manner rather than in a mass, reveal their charms to the full when the ground between them is carpeted with the close growing greenery of such plants as *Herniaria glabra*; and if the yellow leaved variety *H. glabra aurea* is used under the purple *Orchis* or *Colchicums*, the colour effects are still more pleasing. The *Herniarias* are not particularly showy, but they will grow without difficulty, covering neatly any odd slope and corners that might otherwise be bare of verdure, and they are small enough to serve the purpose indicated above without smothering the more important plants between which they grow. *H. incana* is whitish grey, and dark-coloured flowers look well over it.

HIPPOCREPIS COMOSA.—This is a native plant of considerable charm. Its stems snug the ground, and are closely covered with pinnate leaves. The flowers are bright yellow, borne in clusters, the flowering period extending from May to August.

HOMOGYNE.—For damp, shady places, in somewhat enclosed corners of town gardens, *Homogyne alpina* is quite a useful plant. Its foliage is of a glossy green, is maintained throughout the year, and from the end of March to May cheery rosy mauve flowers are borne on 3 or 4 inch stems. *H. discolor* has flowers of purple and white, a little taller in growth than *alpina*. The plants divide with ease.

HYPERICUM.—This is a wonderful genus, widely varying in size and character, and well worthy of close study. We have *Hypericums* that make big, strong growing

shrubs, species that will grow luxuriantly under the dense shade of trees, on dry, stony hedge banks, or on wind-swept cliffs. We have other diminutive gems that will make perfect little specimens in a space six inches square, and some that will bedeck the face of a stone wall with golden stars, backed by delicately tinted aromatic foliage. A representative collection of *Hypericums* will provide a wonderfully varied display of ornate foliage, coloured stems and bright flowers, yellow being the prevailing colour of the petals, whilst many have strikingly beautiful bright red anthers, and in some cases the flowers are followed by shining berries of red or brown tints. There are upwards of two dozen dwarf-growing kinds that are suitable for the rock garden or alpine bed, and a few are well worthy of pot culture for the alpine house. Propagation for the most part is best effected by means of cuttings, rooted under a bell-glass or hand-light, but those species that spread by means of underground stems may be increased by division. A few kinds that may well form the nucleus of a collection, or will constitute an interesting selection for any ordinary rock garden, are *H. coris*, *humifusum*, *olympicum*, *polyphyllum*, *reptans*, *tomentosum*, and *moserianum tricolor*, the last named being a choice gem, with foliage marked with red and white on a bright green ground.

IBERIS.—The perennial candytuft is a plant that literally smothers itself with bloom. Growing with surprising freedom in the poorest of soils, the plants develop into prostrate or semi-prostrate bushes, and at times the masses of flowers are so dense that foliage and stems alike

are hidden from view. *I. sempervirens* and its varieties are evergreen, *I. semperflorens* blooms almost incessantly, some flowers appearing even during mild periods of winter. There is a double-flowered form of *sempiflorens* and several large-flowered varieties of *sempervirens* are obtainable under such names as snowflake, *grandiflora*, *superba*, etc. *I. gibraltarica* has pale rose or lilac-tinted flowers, this also being almost a continuous winter-flowering plant. *Pinnata* is specially noteworthy on account of the fragrance of its flowers, but *sempiflorens* is also fragrant. Any of the *Iberis* will root from cuttings, or may be increased by laying side branches under stones. Seeds germinate freely enough, but seedling plants are somewhat variable in habit, and occasionally a plant may be found to grow coarsely and produce less flowers than the better forms. If such a plant fails to make a good show after the second season, it may be well to discard it in favour of a more compact, free-flowering form.

MERTENSIA.—Several species of *Mertensias* are well qualified for a place in our review of the plants that are of free and easy growth, although a few must be classed with the "choice" subjects that require somewhat careful treatment. *M. alpina*, *M. lanceolata*, *M. paniculata*, *M. pulmonarioides* and *M. siberica* are all free growing and all beautiful, and are especially useful in that they make themselves perfectly happy in positions lacking in sunshine. Blue in varying shades describes the colouring of the pretty arching racemes or panicles of drooping blossoms, but in the case of *M. siberica* the flowers are first pink, gradually changing with age to a soft shade of

blue. Flowers on one stem may be seen of varying shades of colour, and the effect of a well-developed plant is very pleasing. The smaller kinds that require nice little pockets in the rockery where they will not get smothered over by rougher and more rampant subjects, are *M. echioides*, *M. oblongifolia*, and *M. primuloides*. All the *Mertensias* are remarkable for the length of their flowering period, and on that account, combined with their daintiness and quiet charm, the whole genus is worthy of special attention by owners of small gardens.

MIMULUS.—These are some plants which have been known and cultivated for generations and yet seem to miss the degree of popularity one would imagine their unusual qualities would ensure. Some of the perennial *Mimulus* may be cited as examples. The *Mimulus* is decidedly an old favourite, for its culture dates back to 1826, wellnigh a century ago. It is a genus that embraces species of widely varied form, and the brilliance and striking combinations of rich colours that characterize the majority cannot fail to attract and please the majority of flower-lovers. Still, strangely enough, there are but few gardens where *Mimulus* are made an important feature, and the reason for this is somewhat difficult to explain. It must be admitted that a frequent answer to the query is that *Mimulus* do not stand well, but their short life is more often than not due to misunderstanding of their requirements.

Mimulus love moisture in abundance, and the first essential is to pick out a low-lying position, partially shaded, and easily kept moist. The plants do not require

to be bedded among stones, but should be given a soil of loose, fibrous nature that will hold by absorption a great deal of water. Here the plants grow luxuriantly, and make thick, substantial rhizomatous stems. The proper season for planting *Mimulus* is in spring, and at the approach of winter the plants should be cut back close to the ground and a mulching of sifted soil and sharp sand in equal part spread over the rhizomes. With this perfectly simple treatment the perennial species and their varieties and hybrids may be depended upon to pass safely through an ordinary winter, and break afresh into strong growth at the return of spring.

M. alpinus, brownish crimson in the type, has dazzlingly brilliant varieties, under such names as Crimson King, Brilliant, Corallina, etc. Coronation is the name of one of the latest introductions, and it is a real gem that is of intense velvety crimson.

The *Maculosus* hybrids give us the handsomely spotted and blotched large-flowered varieties. Chalk Hill Giant is the name given to a strain of immensely large-flowered varieties in a remarkably varied and wonderful range of rich colourings. *M. luteus* is the common, erect-growing, yellow species that may frequently be found luxuriating at the margins of water. *M. ringens* is also yellow, but the ground colour is thickly spotted with brown. *M. cardinalis* is brilliant red, erect growing, the height varying according to position and moisture, from 1 to 3 feet.

Many seedling forms varying widely in colour may be had in the *cardinalis* type, and it is well worth while raising a batch of seedlings to form a spreading mass of riotous

colour. There are signs of late that *Mimulus* are gaining in favour, and ere long let us hope these gorgeous flowers will be well in evidence in all gardens of any note.

NEPETA MUSSINI.—Of shrubby character with grey stems and hoary leaves, this plant is one of the freest and most continuous flowering plants for either a prominent position on the rockery or for the front of the alpine bed. The spikes of small lavender-coloured flowers are produced with the utmost freedom from spring to autumn, and even without blossoms the silvery-grey, crumpled foliage, thickly set on wiry stems, makes a bright and cheerful patch when most other subjects are at rest. The *Nepeta* may be easily propagated by means of cuttings, early autumn being a suitable time to take them. There is one point that should be mentioned. Something in the aromatic foliage of the *Nepeta* possesses a great power of fascination for cats which will lie and roll upon the plants, and sometimes devour almost all the foliage. Should a cat be found to have commenced paying unwelcome attention to one's plant the best course is to syringe its foliage with a paraffin wash, using a good soluble preparation for the purpose.

NOCCÆA.—Sprinkle a pinch of seed of *Noccæa alpina* or *N. stylosa* in the crannies and crevices of a rocky mound or an old stone wall, and a colony of small, close-growing, cress-like plants will be established which will thrive, blossom freely, and scatter seed to reproduce their species without causing the slightest trouble. *Alpina* has white flowers in close little heads, *stylosa* is lilac mauve, and very pretty. The flowers are fragrant and are freely

borne from the latter days of spring until early autumn.

ÆNOTHERA.—The Evening Primrose is the common name for a highly interesting family of plants that contains several particularly good rock plants as well as the familiar tall, free-flowering yellow biennial, which is itself one of the most useful and showy of hardy flowers. The whole family may be written down as perfectly simple in their cultural requirements, but the smaller, tufted and prostrate growers, which are the best for collections of rock plants, need to be planted in groups clear of rambling plants that are prone to smother neighbours of less rampant growth. Some of the kinds are real "evening" flowers, but others keep their blossoms open throughout the day. Of the latter group, *Æ. fruticosa* is an example, and it is a free-growing plant of tufted growth with erect stems carrying heads of rich yellow flowers. *Æ. glauca fraseri* is another of similar character, but dwarfer. Both may be increased by division. Remarkable in character, and extremely beautiful is *Æ. acaulis*, frequently named *taraxacifolia*. One peculiarity is the remarkable resemblance of its foliage to that of the dandelion, which resemblance has frequently led to the unwitting destruction of young plants. Of prostrate habit, the plant produces large widely opening blossoms, 4 inches or more across, which open a pure satiny white. The second day the blossoms change to a delicate but clear shade of pink. and the effect of old and new blossoms intermixed is very fine. The plant grows readily and true from seed. An excellent companion for this plant is *Æ. missouriensis*, which produces bright red, prostrate stems clothed with

lanceolate leaves of considerable length. The leaves are densely covered with soft silky-white hairs, and the blossoms, which are almost as large as those of *acaulis*, are of a clear canary yellow. Another name for this species is *Æ. macrocarpa*. A handsome evening-flowering plant is *Æ. cæspitosa*. Its white blossoms are often nearly 6 inches across, and are sweetly fragrant. The name *marginata* is commonly given to this plant. *Æ. rosea* has smaller but very pretty flowers of rosy pink, the plant growing about 6 inches high.

Perhaps the finest of all the tribe is *Æ. speciosa*, a plant that is of practically shrubby habit with slender wiry stems, small leaves and, when well established, an abundance of white fragrant blossoms that become tinged with rose as they age. It is a fairly tall grower, exceeding 2 feet in good soil, but it is a decidedly beautiful subject for prominent positions on the rockery, whilst nothing could be finer for the Alpine bed. In fact all the *Ænotheras* are exceptionally good for the latter purpose.

OMPHALODES.—Two of the *Omphalodes*, *O. luciliæ* and *O. nitida*, must be given a place among the choicer and perhaps more difficult plants, but *O. verna* and its white variety *verna alba* are quite easy subjects that grow freely, throwing out "runners" in all directions until the plant occupies a goodly space with its lively green foliage among which rise many heads of blossoms much like forget-me-nots. This is a capital spring-flowering plant for the Alpine bed. It is easily propagated from the "runners" which may be detached and lifted with roots to be transplanted from midsummer to mid-autumn.

ONONIS.—Belonging to the leguminosæ, or plants with pea-like blossoms, the family Ononis includes several interesting plants of sub-shrubby character. They are specially useful for growing on dry slopes, and on the higher parts of rockeries in exposed positions, for the plants withstand both drought and wind with impunity. The flowering period of the members of this family extends from May to September, and the foliage is effective even when the plants are not in bloom.

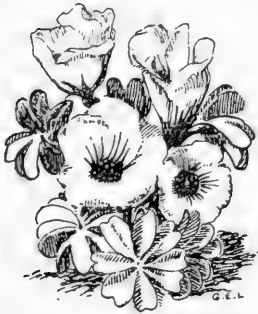
The best of the species are *rotundifolia*, with rosy pink flowers on 18-inch stems, *arvensis*, a prostrate spreading plant with pale pink flowers, *fruticosa* with purple flowers, and *spinosa alba*, with prickly branches and white blossoms. *Natrix* adds distinct variety by providing flowers of bright yellow, veined with red.

ORIGANUM.—By botanical classification the *Origanums* are just marjorams, but the four or five sorts that are to be strongly recommended as excellent plants for the rock garden, the alpine bed or for pot culture are decidedly more ornamental and attractive than the marjoram which is familiar as a kitchen herb. The foliage is certainly somewhat similar and is just as aromatic, but in *vulgare aureum* the leaves and stems are of bright yellow, and are specially effective in the spring months.

O. dictamnus throws up graceful slender stems with nodding bracted flower-heads of rosy pink that bear a strong resemblance to small heads of pink coloured hops. *O. hybridum* is perhaps larger and brighter, but is still similar, and *O. pulchellum* has silvery foliage. All may be rooted from cuttings with ease, the best time being in

spring, when the young growths may be taken from the base when about an inch high.

OXALIS.—Daintily pretty foliage, like five-lobed clover leaves on a refined scale, and sweetly pretty little cupped flowers characterize in a general way the “Wood Sorrel,” as the members of the genus *Oxalis* are termed. For the most part they are quite easily grown plants, liking cool and shady places, but *O. enneaphylla*, a totally distinct



BLOSSOMS AND FOLIAGE OF
OXALIS ENNEAPHYLLA.

plant with nine-lobed, glaucous, almost silvery leaves and large pure white flowers which are finely veined, is a gem that deserves a little special attention in the way of providing a pocket of sandy soil with good leaf mould, situated in a position open to morning sun, but shaded from the fierce heat of noon. The plant also requires watching to keep slugs and woodlice at a distance. *O.*

acetosella is a native plant that luxuriates in the leafy soil under deciduous trees. It has white flowers veined with purple, but its variety *rosea* is pink. *O. deppei*, a tuberous-rooted plant, throws up stout stems of large flowers which are of a peculiar and pleasing shade of colour, which might be termed rosy terra-cotta.

PAPAVER.—Of poppies there are two species that well might grace every rockery that has at least a corner that reaches the sunlight, for *Papaver alpinum*, and *P. nudicaule*, known as the Iceland poppy, never fail to receive

ardent admiration from whomsoever has love for flowers. The description of the two might well be identical, but for the fact that the Iceland poppy is thrice the size of the Alpine poppy in leaf, stem and blossom. A group of either planted in early spring will produce a wonderful display of glistening flowers, the petals of which are glossy and have an appearance as of crumpled silk. The colours are clear yellow, rich orange, pure white, and there are shades of delicate salmon, rose and buff. Once planted, self-sown seedlings may be depended upon to maintain stock. In some districts and soils these small poppies will survive two or three winters, but sometimes young plants on light dry soils will flower with such freedom that they exhaust their strength and perish during a wet winter.

Several fine selections and strains of Iceland poppies have from time to time been brought forward by various hardy plant specialists, but whilst for border work Harkness's Giant strain, and Baker's Sunbeam poppies are improvements upon the older type of Iceland poppy, the ordinary simple but lovely little Alpine poppy is the best for rock gardening.

POLEMONIUM.—There are somewhere in the neighbourhood of a couple of dozen kinds of "Jacob's Ladder," as the Polemoniums are called, which are worth cultivating, but some of these are essentially herbaceous border plants, the rock plants being the dwarf, neat-growing and dainty little kinds such as *P. confertum*, *P. reptans*, *P. gracile*, and perhaps *P. humile*, a sky-blue, free-flowering plant that is frequently met with under the name of *P. Richard-*

soni. All the kinds named have blue flowers, but *P. confertum mellitum* bears abundant white flowers. *P. humile album* is another white variety producing its clusters of bloom on stems a foot or 15 inches high. Another variety of *P. humile* is named *pulchellum*, a sweet little gem only about 3 or 4 inches high, and bearing a profusion of pale blue flowers. Division in spring is an easy means of increasing stock, but small pieces are best potted for awhile until they make fresh growth.

POLYGONUM.—The Polygonum family is very remarkable for the wide diversity in form, habit, stature and appearance. We have the superbly handsome climber, *P. baldschuanicum*, the great strong-growing *P. cuspidatum*, that will not only reach a height of 8 or 9 feet, but will if permitted rapidly spread itself over a rod of land, and is more appropriately adapted for growth among trees or in positions where a screen is desirable, but the kinds with which we may immediately concern ourselves are the miniature or the trailing species and varieties that will tumble over rocks, or down the face of a wall, or make a dense carpet of foliage and flowers on a stretch of the alpine bed.

First we may take *P. affine*, free and easy growing with innumerable wiry stems clothed with glossy green foliage that takes on ruddy metallic hues in autumn. The plant bears quantities of coral pink blossoms with a glistening sheen, the spikes bearing some resemblance to ears of wheat dipped in pink dye, but far more beautiful than any artificially coloured thing could be. Another trailer of exquisite loveliness is *P. vacciniifolium*, with deep rose-

pink flowers and trailing stems clothed with foliage of changing tints. *P. sphærostachyum* has flowers as red as blood, and there are still others possessed of individual charms. Layers, cuttings, division of the underground rhizomatous root stems offer means of increasing stock—but the finest results are obtained by leaving an established plant undisturbed, to cover as great an area as can be spared, mulching with rich soil from time to time when a tendency to bareness of stems is noticed.

POTENTILLA.—Apart altogether from the florist's double-flowered *Potentillas*, which are themselves quite suitable for rock-garden culture so long as a cool moist root run can be provided, there are quite a host of dwarf or trailing species and their varieties with foliage simulating the strawberry, and bearing flowers more or less like strawberry blossoms, but of brilliant colours such as golden yellow, rose pink, ruby red, and crimson. Quite distinct, and exceptionally attractive, is the shrubby little plant, *P. fruticosa*, illustrated in our coloured plate. This is one of the best of flowering shrubs for the rockery, simply wanting a well-nourished patch of soil in some fairly prominent position to make it a most striking object. Layers, put down after the manner advised for *Veronica salicornoides* (see illustration), will produce young stock of this species, but most of the soft wooded species may be propagated from divisions, runners, or seeds. A few of the prettiest *potentillas* for rock or Alpine gardening are *P. hopwoodiana*, with buff-coloured flowers shaded with salmon and pink; *P. Tonguei*, rich orange, with spots of vivid red; *P. nitida*, of which there are white, pink,

and purple flowers, all of which have silvery silky foliage. *P. nepalensis*, more frequently called *P. formosa*, is of free and easy growth, flowers rosy red, and borne with great profusion and continuity. There are many other *Potentillas* of merit, and with those already named as a nucleus, the reader may add to the number at will, and derive great pleasure from a collection of these handsome-foliaged and pretty-flowered plants.

PRUNELLA.—Wherever a very easily grown plant is required to quickly cover a broad area of rock-work, and to bloom for several months, the *prunellas* lay claim to attention. Neat spikes of bloom are freely thrown up over a dense carpet of foliage, and one may have the choice of purple in *P. grandiflora*, violet in *P. grandiflora pyrenaica*, white in *P. laciniata*, or rosy purple in *P. webbiana*, the last named being a particular showy variety.

PULMONARIA.—Just as easy to grow as the *prunellas*, provided they are given a spot where they will not be burnt by the full heat of the summer's sun, the *Pulmonarias* have a quiet and quaint beauty both in flower and leaf. The foliage of *P. officinalis* is spotted with white in a very conspicuous manner, *P. saccharata* being another species with prettily mottled leaves. The latter has rose-coloured flowers, those of *officinalis* being red, both showing some violet in the older blossoms. There are white and bright red varieties of *P. officinalis*, and other desirable kinds are *P. arvernense*, deep blue, and *P. angustifolia*, the flowers of which are first pink, changing later to blue. Division of the roots is a simple matter, and with plenty



1. PAROCHETUS COMMUNIS (The Shamrock Pea)

2. VERBENA CHAMÆDRIOIDES

of water from spring to autumn the *Pulmonarias* will make a bold display extending over a prolonged period.

SEDUM.—Next to the saxifrages the Sedums must surely be placed as the most serviceable of plants for the amateur's rockery. So hardy, so accommodating in regard to situation and soil, some of them capable of growing almost without soil, requiring no particular skill in planting, and able to withstand scorching drought, and to safely come through a prolonged deluge, the Sedums are indeed a boon to many rockeries which either from faulty construction, poor soil, or unfavourable environment would without them be but disheartening failures. And in variety of form, habit and colour the Sedums are remarkable. They range in size from mites scarcely an inch high to erect growing bushes a couple of feet in height and as much in diameter. There are Sedums with golden, crimson, bronze, and blue-grey foliage and of green in a wonderful range of shades. Sedums may have white, golden yellow, pink, red, or purple flowers, and some are of prostrate, trailing, or pendant growth, some erect, bushy, and of almost shrubby appearance, whilst some make neat symmetrical cushions over which short-stalked, flattened umbels of bright-hued flowers show to great advantage. So many and so beautiful are the species and varieties of this easily cultivated genus that it is impossible to name and describe them all, and it would be an injustice to the rest to single out a few for particular mention. The majority are among the cheapest of alpinists to buy, are easy to increase by division, and as almost every plant catalogue contains names and descriptions of a large

number of Sedums, a collection can be added to from time to time at will.

SEMPERVIVUM.—Commonly known as “House Leek,” the Sempervivums are succulent plants of cactus-like character, so tenacious of life that they will not only exist but thrive and look happy even in positions that afford them scarcely a root-hold on the rugged ledge of a rock with the merest covering of soil. It is no uncommon sight to see a colony of *Sempervivum tectorum* braving the scorching sun on the top of an old garden wall or on the roof of a shed or country cottage, and whether between rough stone edging to a pathway, in the chinks of stone steps, or on the steep slopes of a rockery bank, Sempervivums will delight us the whole year round with their grey, green, russet, or metallic tinted rosettes, and in due season with their quaintly beautiful, waxy-looking flowers of starry shape and generally quiet tints.

In size the rosettes of Sempervivums vary greatly. *S. globiferum* makes many clustering rosettes not much larger than peas. *S. Reginae-Amaliæ* develops to the extent of 4 inches diameter, and *S. atro-violaceum* grows quite as large, the foliage being broad, thick, and of a delightful violet-purple shade. The cobweb house leek, *S. arachnoideum*, is a general favourite, and quite deservedly so. Its globular rosettes of closely-packed leaves have a wonderful hair-like thread stretched from tip to tip of every leaf, giving the plant an appearance of having been curtailed by some fairy spider, and on a dewy morning the effect of glistening globules of moisture on this vegetable cobweb is fascinatingly beautiful. The cobweb is always

more conspicuous when the roots of the plant are well supplied with lime rubble, and in fact it is a good plan to firmly wedge mortar rubbish or limestone chippings among the roots of all *Sempervivums*. In regard to propagation nothing more is needed than to shake the soil from the roots of a clump, and pull the crowns asunder, planting or potting each rosette separately, pressing soil and bits



SEMPERVIVUMS, SHOWING OFFSETS AND INFLORESCENCE.

of porous stone or rubble tightly around the base. Even those rosettes that break away without roots will, if firmly fixed, develop new roots. It is a wise plan when planting *Sempervivums* to separate the plants and distribute them over a comparatively broad area, for thus they will spread until they form a united mass, whereas if a tightly packed cluster is planted, the tendency will be to force the central crowns far out of the soil, and in a season or two some of

these crowns will die off, leaving bare patches in the middle of the mass.

If only a few kinds of *Sempervivums* are required for a small sunny rockery, any of the following half dozen may be chosen as being distinct and pretty. *S. arachnoideum*, the cobweb house leek already described, *S. atrovioleaceum*, *S. calcareum*, more frequently named *californicum*, a distinct flat rosetted plant with glaucous foliage, each segment tipped with chocolate brown, the flowers being of a light reddish shade. *S. Pittoni*, with medium-sized rosettes of soft claret colour, tipped with purple, and uncommon primrose yellow flowers. *S. Regina-Amaliæ*, producing large rosettes, the older segments of which assume metallic bronze tints, and large spherical heads of sulphur-yellow flowers, and *S. triste*, which makes rosettes about 3 inches across, of a glossy mahogany red, with tall spikes of bright red flowers. But there are at least a hundred varieties of *Sempervivums*, and anyone who is particularly fond of succulent plants may gather a remarkably interesting collection which, if grown in pots or pans, may be accommodated in quite a small alpine house or in a frame of moderate dimensions.

VERONICA.—There is surely no garden in the land where some species of *Veronica* cannot be grown with a fair measurement of satisfaction, for it is a family of extensive variety and much merit, and is singularly free from what may be called fastidious notions. Ordinary soil, sun or shade, the rock garden proper, the alpine bed, or the wall garden will suit some of the most interesting of *Veronicas*, whilst it must be a hopeless sort of place that cannot pro-

vide the necessities of life for such hardy and free-growing species as *V. repens*, *V. officinalis*, or *V. longifolia* and its several varieties. The majority of the types have flowers of some shade of blue, a number having white counterparts, whilst there are several pretty pinks of various shades. The best for rock gardening are the prostrate species and those of the "Club Moss" type, which bear a remarkable resemblance to coniferous shrubs on a small scale. Of these latter *V. cupressoides*, *V. hectori*, and *V. salicornoides* are good examples, but for large rock gardens there are many species of evergreen shrubby character that are capable of fine effects, although it must be admitted that, generally speaking, these are less hardy than the prostrate growers and the herbaceous section.

Unfortunately a great deal of confusion exists in the nomenclature of Veronicas, and it is a task of considerable difficulty to describe in simple language the distinguishing details of the correct plant where two or three are commonly met with under one name. I do not want to weary readers with many botanical or technical terms, and even though I did so there would still be likelihood of errors, for even the leading experts are far from unanimous in their decisions regarding Veronicas. I shall therefore content myself with mentioning just a few interesting and distinct kinds that may well be planted on the rockery or in the Alpine bed to provide pleasing variety, all those mentioned being quite simple in their cultural requirements.

V. Allioni is a good one, growing about 6 inches high, and producing comparatively long spikes of deep rich blue flowers.

V. cæspitosa is about the same height, with short spikes of pink flowers, the individual blossoms being larger than the average. The stems and leaves are covered with white woolly hairs. This plant likes full sun, and must have thorough drainage.

V. canescens is quite one of the daintiest plants in cultivation. It hails from New Zealand, but is an ideal rock plant, and is also exquisite in shallow pans, the surface of which it will completely cover. Small in growth as the tiny *Arenaria balearica*, the creeping stems snug so closely to the earth's surface that to speak of stature is out of the question. The foliage is simply flat upon the soil or stone over which the plant spreads, and over the greyish-green carpet are strewn pale lilac or lavender-tinted blossoms that nestle like tinted dewdrops on the herbage.

V. incana. The chief feature of attraction in this plant is its foliage of silvery whiteness. It grows to a height of 8 or 9 inches, and its dark blue flowers contrast prettily against the white leaves.

V. repens grows quickly, thickly, and in prostrate form, making an emerald carpet over which pale blue flowers are plentifully produced. This is a good plant for moist shady spots and it is an excellent plan to utilize it in broad patches where such things as *Ornithogalums*, *Anthericum*s, *Allium*s or the smaller daffodils are thinly planted.

V. longifolia rosea is one of the nicest pink-flowered varieties. It grows a foot or rather more in height. This is one of the *Veronicas* that masquerades under several

names, and is often confused with *spicata rosea*. Seedling forms that vary in strength and shade of colour have got into commerce under different names. It would be far better if only good forms were preserved and the one authentic name used.

V. spicata corymbosa is one of my favourites. The true form has central spikes surrounded by several tassel-like lateral spikes, the colour being a rich shining blue. This, again, is a plant that is too often sent out untrue or in an inferior form. When a plant of true stock is secured it may be propagated by division in early spring.

V. Teucrium dubia is still persistently listed in catalogues both as *V. prostrata* and *V. rupestris*, but whichever name we may obtain it under, it is a simple matter to give the plant a correctly-written label, and it is far too good a plant to spurn because it lives under an alias. It is one of the most serviceable of dwarf-growing, blue-flowered plants, requiring quite ordinary soil and capable of wellnigh dispensing with attention. The larger growers among these Veronicas may be propagated from cuttings of the young growth, the smaller tufted or creeping kinds make fibrous root clumps that will divide with ease, whilst those of the "Club Moss" type, such as *cupressoides* and *salicornoides*, may be layered by simply pressing the outer branches into sandy soil, placing stones upon them to hold them in position, after the manner shown in our illustration at page 56.

If layered in autumn the stems may be severed from the parent plant in spring and the rooted offshoots carefully lifted for potting or planting in permanent quarters.

VIOLA.—The name *Viola* botanically covers the whole of the pansy and violet tribes. Our present concern will be with the many pretty little species that belong more closely to the alpines than with the florists' varieties of pansies and violets that are grown for bedding or for exhibition.

The pansy of the Alps, *Viola calcarata*, is a graceful little plant with small tufts of foliage and pretty little purple blossoms. It grows well on the rockery if afforded some lime at the roots. *V. cornuta* is another charming species of which there are many forms and garden varieties, lavender, mauve, blue, purple and pure white being obtainable colours.

V. gracilis is one of the most desirable, the rich velvety purple and deep violet forms being very lovely.

Quite a number of other species and select varieties are available, and there is scarcely a *viola* that is unworthy a place in the rock garden except it may be some seedling of indifferent colour. Cuttings taken in early autumn will root freely in a shady corner, the protection of a hand-light being desirable in any but well-sheltered gardens.

CHAPTER IX

CHOICE ALPINE PLANTS FOR THE ROCK GARDEN OR ALPINE BED

WHILST for convenience of distinction the second selection of plants is placed under the title "Choice" Alpine plants, I would hasten to assure my readers that it is by no means intended to convey the impression that these are all plants that require an exceptional amount of skilful care and special provision to keep them alive and healthy, for it may be at once asserted that very many of these are subjects that will afford little trouble so long as reasonable regard is paid to the character of growth, the preference for sun or shade, and in the case of the woolly or silvery-leaved plants, to the advisability of preserving them as far as possible from being smothered by grime and smuts during winter.

In some considerable number of cases a family will be found to contain some varieties that are exceptionally easy to grow and others that require rather special attention or particular environment. Where such is the case to a marked degree an effort has been made to clearly indicate the differences, but generally speaking it would be somewhat misleading to deal with one genus in separate

sections, and it has rather been my endeavour to group in the preceding chapter plants of somewhat strong or rampant growth that may be planted anywhere without fear of their overwhelming and damaging plants of smaller and slower growth. Therefore in this chapter quite a number of plants are included which, although slow of growth, are not of fragile or delicate constitution. In families like *Campanula*, *Saxifraga*, *Primula*, etc., both rampant and restricted or diminutive kinds are met with. It is a fairly safe rule to plant the stronger growers in colonies by themselves, and to group the smaller ones apart from anything of a creeping or spreading character.

ACANTHOLIMON GLUMACEUM.—Known as Prickly Thrift, this plant makes compact little cushions of stiff awl-shaped leaves. Given a high and dry position where it gets well baked, the plant produces a fine show of rosy pink flowers during midsummer. This is one of the plants that should have a mulching of sandy soil in winter or early spring, as it is inclined to become leggy and naked if this little attention is lacking.

ACHILLEA.—This genus contains many useful and deservedly popular plants, several of which are highly esteemed as being particularly good for cutting, but there are approaching a score of European and Asiatic species or garden forms and varieties of them which are of dwarf compact habit, and have elegantly cut or otherwise ornamental foliage. These are capital plants for rock-work, or for the margins of beds or borders planted with larger hardy plants. Of white-flowered kinds both *A. ageratum* and *ageratifolia* have also silvery white foliage, and *A.*

clavennæ has a dense coating of silky white hairs over leaves and stems. *A. compacta* is still another white plant, while *A. griesbachii* has glaucous, or grey-green leaves against which the white flower-heads show up to pleasing advantage. *A. moschata* has green fragrant foliage, and *A. herb-rosa* is another sweetly perfumed plant. *A. tomentosa* has close heads of bright yellow flowers, and is one of the showiest of plants during summer and early autumn. Other dwarf *Achilleas* are catalogued by most hardy plant specialists, but for small gardens two or three kinds will be sufficient, there being close similarity between several. Propagation by cuttings is easily effected in spring, the cuttings being inserted round the edge of a pot full of very sandy compost. As with most plants with silvery or downy foliage, a dry sunny position suits *Achilleas* best, but the green-leaved kinds will thrive in shady places.

ACTINELLA.—The Rocky Mountain sunflower grows about 6 to 9 inches high, the stems branching freely and bearing yellow blossoms with great freedom. *A. grandiflora* has quite large flowers, 3 inches or so across, while *A. odorata* is sweetly fragrant. Another *Actinella* named *scaposa* has silvery foliage. Division of roots in spring is a simple means of propagation.

ADONIS.—We have many yellow flowers, but there is a chastity and elegance as well as richness in the colour of *Adonis*, the finely-cut foliage and the "cupped" blossoms of either *A. vernalis* or *A. amurensis* making a display in the early days of spring that never fails to win admiration. *A. amurensis* has a double-flowered form, and it

is a double flower that loses nothing of daintiness and charm but gains substance that enables it to last considerably longer than the single type. *A. pyrenaica* flowers when the others named have finished their display, and occasionally a white-flowered form of *A. vernalis* is met with, but except for the interest in its novelty it cannot claim greater merit than the bright and more cheery yellow type. Adonis are very hardy so far as their ability to stand frost is concerned, but they must have a deep root run in light rich soil, well drained so that the roots are free from stagnant moisture in winter. They can absorb and indeed require copious supplies of water during the growing period.

The plant dislikes disturbance at the root, and although stock may be increased by division of a strong clump it is better to leave the plants undisturbed for several years, sustaining them by mulching. A batch of seedlings thinly planted over a fairly wide area, with the whole surface of the soil sown with seed of the sweet little annual *Sedum cæruleum*, will grow and increase in strength year by year, and such a colony will present a glorious display each spring, the carpet of blue-flowered sedum keeping the adonis cool in summer. Although only an annual, the sedum may be depended upon to reproduce itself from seed, which is plentifully produced.

ÆTHIONEMA.—These are extremely beautiful little plants, somewhat resembling the familiar candytuft but more refined and elegant in every character. The *Æthionemas* are hardy and easy to grow, with the one proviso that quite young plants shall be planted from pots and

thenceforward their roots shall be left undisturbed. Choose a sunny position, and work a quantity of mortar rubble, broken bricks or bits of limestone into the soil. Plant firmly and allow a good space for development. Propagation may be effected by cuttings stripped off with a heel in early spring, or later on after the plants have finished flowering, about the latter end of August.

The compost should be almost half sand with sifted peat and loam, and it is better to use thimble pots for each cutting singly than to put a number in a large pot. A frame or a bell glass will provide accommodation for the cuttings, which should be potted into 60's before the thimbles become filled with roots.

Seeds sown as soon as ripe germinate freely, and if the seedlings are potted whilst quite small they will soon make plants strong enough to be put out permanently. Any seed not required should be removed from the plants, and the growths that have flowered should be shortened back almost to the main stem. This will encourage strong vigorous young growths that will bloom freely next season.

Among the easiest members of this family for the small Alpine bed or rockery in a town garden may be mentioned *A. coridifolium*, *A. grandiflorum*, and *A. pulchellum*, all of which have branching stems clothed with glaucous foliage, terminating with heads of pink flowers. *A. iberidium* may be had in white or pale mauve forms; and *A. saxatile*, quite a miniature shrub of 3 to 4 inches in height, runs to almost a purple tint.

ANDROSACE.—As a family the Androsaces may claim to be among the very aristocracy of the alpine flora, but

whilst some members of the family are somewhat exacting in their requirements and must be classed among the more difficult cultures, some are just as easy as one might wish, and on the whole the genus has suffered undeservedly because of the apparent eagerness of writers to warn amateurs to leave what they term these "troublesome and disappointing" plants alone. There is no justification for adopting such an attitude toward plants of unsurpassed loveliness, some of the prettiest among which really require but a moderate amount of care to ensure their success. The chief care needed is to contrive to ward off from the rosettes of silky or downy foliage the drizzling rains and sleet showers of our frequently mild but wet winters. Of crisp keen frost the *Androsaces* can endure our hardest visitations cheerfully, but when wet settles in the rosettes, and remains for days and weeks, the hairy tomentum which thickly covers the leaves is liable to damp off, and then ensues decay of the leaves and crowns. A simple but effective method of preventing trouble of this kind is to place over the plants in winter a covering sheet of glass, tilted and held in position by a metal clip on a strong footstalk. Our illustration will explain the idea, and such clips and supports are expressly made for the purpose. The glass is far enough above the plant to allow free circulation of air, and so long as the edges of the glass extend beyond the area of the plant, no drip or rain will cause trouble. *Androsace carnea* is a delightful, extremely beautiful plant, and is quite easy to grow. It forms close-growing masses of fresh green foliage, not of the silky or downy character. Over this

green cushion is thickly scattered during midsummer a mass of clear rose-coloured blossoms, with a yellow eye in the centre of each little flower. A larger and richer coloured variety is named *eximea*. Either of these will thrive if planted in porous gritty soil in a position where the full force of midday sun is broken by a plant of taller

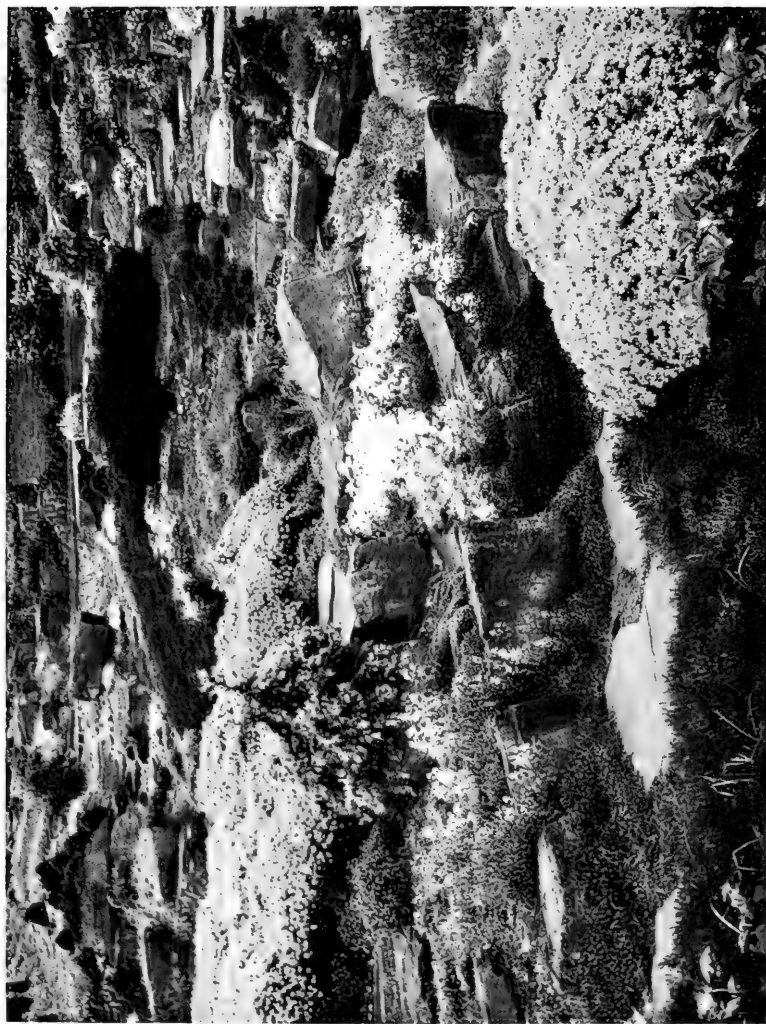


A PROTECTOR FOR PLANTS THAT DISLIKE WINTER'S WET.

The glass is held by a "Cloche Clip" supported on a stout rod.

bushy growth, or by a friendly boulder of stone on the southern side. This plant will divide without difficulty, during September. *A. foliosa* is one that has no bad traits of character. It has grey foliage, but it is robust and strong, capable of looking after itself. Its flowers are of a rosy lilac, and are borne in, relatively speaking, large umbels, on stalks of from 6 to 9 inches in length. Like

its relatives, *A. foliosa* likes to root among rubble, grit, and light soil. It enjoys the sunshine so long as its roots are provided with plenty of moisture during the growing and flowering period. A good method of propagation is to mulch close up to the foliage with a mixture of half sharp sand and half sifted peat, pressing the mulch well round any bare, elongated stems. Keep the mulch frequently moistened from spring to late summer, by which time the stems will have made plenty of young roots, and may be severed from the main plant. *A. lactiflora*, otherwise named *coronopifolia*, and *A. lactea* are as easy to grow as forget-me-nots. A pinch of seed scattered about over the rockery, or on a patch of gritty soil in the Alpine bed, will produce young plants that form close rosettes of long narrow leaves, flat on the soil. Erect flower stalks shoot up from the centre of each rosette in the spring of the second year, shorter and slender foot-stalks radiating from the top of the main stem, thus poising dainty little white starry flowers in a circular umbel, 3 or 4 inches above the foliage. The flowers of *lactiflora* have a faint greenish tint in their whiteness, whilst *lactea* has a distinct yellow eye. Although the plants flower themselves to death in a season, no uneasiness need disturb their owner. Seeds will be freely scattered all around, and plenty of young plants will spring up to provide next season's display. The one essential point is that the plants must be grown in good-sized groups. *A. septentrionalis* has an outline resembling the foregoing, but it is built on larger lines. The rosette of leaves spreads over an area larger than the circumference of a 60 sized



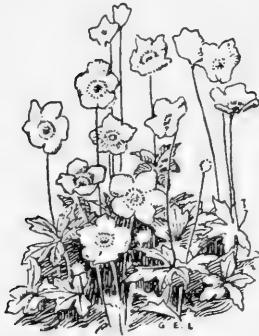
ALPINE PLANTS, HAPPY AMONGST WELL PLACED ROCKS

plant pot. The flower stalks stand about 6 inches high, several rising from one rosette, and the blossoms are proportionately larger than those of *lactiflora*. This, too, may be easily raised from seed, and in addition to making a good plant for a fair sized group in the garden, it is a first-rate subject for pot culture. *A. alpina* is one of the rarities of the family, and to ensure its success it should be given a partially shaded position, with some fibrous peat and an abundance of grit, sand, or limestone rubble in the compost. *A. arachnoidea*, a white-flowering species, requires similar conditions, and *A. pyrenaica* is another.

One of the most popular members of the family is *A. lanuginosa*. Its umbels of rosy-pink flowers issuing from rosettes of silky foliage, on the ends of long, wiry stems, present a most delightful appearance. This is one of the plants that will benefit immensely from annual mulchings of gritty compost. There are several other *Androsaces* of much beauty, but the selection here mentioned will at any rate provide a very good start for the average garden.

ANEMONE.—Were my whole garden overhung by trees, casting their long shadows across the earth, I still would rejoice that I might grow Anemones of a hundred sorts, giving me a riot of colour embracing pale, bright, and deep blues, purples and mauves, flesh pinks, cherry reds and blazing scarlets, with whites to foil the dazzling colours, and yellows to add a further striking contrast. The first flowers of the year might be in time to nod to the fading snowdrops, and I would have Anemones all the way,

until the last should challenge the Michaelmas daisies for colour and for grace. Anemones for the rockery, the open ground, and for pots and pans, and as varied in size and form as they are in colours, may be obtained at



ANEMONE SYLVESTRIS.

small cost, and grown with surprising ease if just one or two requirements are recognized and provided. To see a flourishing group of any of the principal species of Anemones, with their elegantly cut foliage, their graceful stems, and chaste, apparently fragile, but actually substantial blossoms, is a sight no one with sense to appreciate true beauty can be indifferent to; yet, strangely enough, we more

often see a few straggling, sickly looking plants, feebly endeavouring to reveal their charms, but attaining only disappointing results. 'Tis the greater pity that this is so, because it is a matter that might be so easily altered.

The greater number of Anemones are small plants, and are of necessity gregarious, if the word may be applied to plants as it is to birds that love to congregate in flocks, rather than seek isolation from their kind. It is therefore an error, although frequently occurring, to dot the roots of Anemones singly, either in little pockets on the rockery or in the spaces between plants of a totally different character. Whether one has half a dozen or half a hundred roots of any one kind of Anemone, it is preferable to plant in one mass than to scatter them about. The second

point to take note of is that Anemones love shade rather than full exposure, and must have a cool root run. Obviously, then, it is a mistake to perch them high up in the driest and most exposed pockets of the rockery, the more appropriate positions being down below, in bays or recesses, where they may be slightly overshadowed by a bush of *Cistus*, *Berberis*, or *Broom*. The remaining, and very essential, point is that the roots shall be deeply planted in a light soil, with an ample supply of both humus and sand, and that once planted they shall only be disturbed when they have become considerably overcrowded. An annual winter mulching of about half an inch thickness of leaf mould and rotted stable manure, rubbed through a sieve, will nourish and strengthen the roots, with the result that the plants increase in vigour and productivity year by year. All the tuberous rooted kinds should be planted at least 4 inches below the surface. *A. appenina*, and others that spread by means of underground stems, should have about the same depth of soil over them, but *angulosa*, *hepatica*, *pulsatilla* and all that have "crowns" surmounting a mass of fibrous roots, must not have their crowns buried deeply, the only thing being to make holes deep enough to take the whole length of roots perpendicularly.

To describe in detail each of the hundred or so varieties and separate species of this charming family would require a volume, and worthy though the subject undoubtedly is, it is impossible in this instance to do it full justice. The principal groups, however, will be dealt with, and a guide thus provided, which, with the aid of a good hardy

plant catalogue, will it is hoped enable the reader to select and grow a few at least of the best of the Anemones.

A. acutiloba, the varieties of *A. angulosa*, and the well-known *A. hepatica* in both single and double varieties, are of kindred character so far as general form and habit are concerned, the last named being sufficiently well known and well loved to render description almost superfluous. It is somewhat rare that red, white and blue varieties are seen of clear decisive colours in a single species, but in hepaticas we have the trio in double as well as single forms. A group of either of the foregoing Anemones, planted in a bed at the base of the shady side of the rockery, in the alpine bed, or in the herbaceous border, will create a delightful picture in spring and on until June. The plants develop into clumps with several crowns, increase of stock being effected by dividing these clumps as soon as possible after the flowering season has passed.

A. alpina is a plant of totally different character, its growth being strong and upstanding to a height of a foot. Its leaves are pinnate, expansive and very graceful, and its large blossoms are white, with a flush of purple on the outer surface. This plant cannot endure frequent disturbance, its roots being thick, fleshy and long, easily broken in lifting with spade or fork. Seed sown as soon as ripe germinates freely, and the seedlings should be potted while small, and grown on until strong enough to plant in permanent quarters. *A. sulphurea* is a most pleasing pale yellow flower, of similar character to *alpina*. Indeed it is frequently classed as a variety of this species, but it should properly be given separate rank. *A. burseriana*

is another of this section. *A. appenina* and *A. nemorosa* are the European and the British "wood anemones," dainty little plants with ramifying underground stems, commonly called roots, from which spring elegantly cut foliage and sweet little nodding flowers. Both species have several variously coloured varieties, and *nemorosa* has also double white and pink forms.

Among tuberous rooted species we have *A. coronaria*, the "poppy anemone," *hortensis fulgens*, the scarlet wind flower, which for intensity of its vermilion shade is quite incomparable, the lovely *St. Brigids*, in a whole range of delightful shades of colour, double, semi-double, and single, and a few other desirable kinds. They may be raised from seed, or imported tubers may be cheaply obtained. It is a common belief that it is necessary to lift these tuberous roots annually, but my experience is that in a good, light, gritty soil, and with an annual mulch, it is preferable to leave them undisturbed for a few years. The daffodil anemone, *A. narcissiflora*, makes a handsome bush plant a foot in height, with umbels of lovely white flowers, showing a delicate tint of lilac on the reverse of the bloom. Give this plant room for development and liberal nourishment, and it will prove a gem among a host of gems.

A. pulsatilla, our own native "pasque flower," is a glorious plant which, provided it is planted in a deep, cool, but well drained position, will develop into a fine mass, with elegant spreading foliage, and a sheaf of large tulip-like blossoms. The colour is violet, but in the centre of the bloom is a cluster of rich golden stamens.

The flowers and stalks are thickly clothed with soft silky hairs, which glisten in the morning sun, which, by the way, the plant enjoys rather than eternal shade. After the flowers have passed, the seed heads develop a remarkable beauty. The seeds should be sown as soon as ripe, when they will germinate freely. *A. patens* is an American plant that resembles our pasque flower, and *A. pratensis* is like a smaller edition of the plant. *A. sylvestris*, the "snowdrop anemone," and its double form, are two that should not be overlooked, and among the smallest but immensely pleasing is *A. vernalis*. It has flowers of unique colouring, which has aptly been described as opalescent, the glossy silky hairs that clothe the blossoms and stalks emphasizing the apparent iridescence of the colour.

ANTIRRHINUM.—Quite apart from the increasingly popular named varieties of *Antirrhinum majus*, we have natural species of extreme beauty, and of a character that peculiarly fits them for trailing over rock boulders, or down the face of a rugged wall garden. *A. asarina* is very interesting, looking most unlike an *antirrhinum* until its delicate lemon blossoms appear. The foliage is almost heart shaped, but with scalloped edges. It is of a russet shade, and covered with short soft hairs. The stems trail and the flowers are borne in pairs at the axils of the leaves. In exposed localities the plants sometimes suffer in winter, and may with advantage be given the shelter of a sheet of glass.

A. glutinosum has slender, twiggy stems, the plants gradually developing into a small bush. The foliage is

slightly felted, and the prettily shaped flowers are cream, sometimes faintly tinted with pale lilac. The plant may be propagated from cuttings, peeled off with a heel when about 2 inches long. Insert round the edges of a pot in sandy soil, and cover with glass.

BRYANTHUS ERECTUS.—Heath-like in appearance, and popularly known as “moss heath,” *Bryanthus erectus* is a handsome erect-growing shrub with wiry stems, small foliage and red flowers. It likes a peaty soil in a shady position, and should not be disturbed when once established. Young plants may be obtained by layering the lower branches.

Other varieties of *Bryanthus* are *B. empetriformis* and *B. taxifolius*.

CALLIRHOE INVOLUCRATA.—A dwarf, trailing, malvaceous plant, this is particularly useful as providing autumn flowers of rich shining crimson. It may be raised from seeds, the young plants being best grown on in pots until large enough to plant in permanent positions, where the trailing growths may ramble over a rough boulder of rock. With the roots behind the rock, the plant will not suffer for lack of moisture.

CARDAMINE.—The chief charm of the *Cardamines* is that they will thrive in sunless places, and on that account prove themselves extremely valuable for moist nooks and recesses, for brightening colonies of hardy ferns, and for waterways. The colours range from white to lilac and purple, and their average height is about 1 foot. Division of the roots is a simple matter.

CAMPANULA.—It may be said that among *Campanulas*

some shade of blue or purple, with albino or white forms, constitutes the colour range, but to say that alone might convey an impression that the family suffers somewhat from narrowly limited variety, and such an impression would be extraordinarily erroneous and unjust, for the diversity of form, size, habit and capabilities of the Campanulas can be equalled by extremely few genera among the whole range of plants available for cultivation in British gardens. A volume might well be written upon Campanulas, and a garden of considerable dimensions could be filled with beauty and never-failing interest with Campanulas alone, a collection of which might contain wellnigh 150 different species and their varieties, and their number grows with every succeeding year. Not all of these, however, are suitable for inclusion in a collection of alpines, some being tall stately plants for the herbaceous border ; but of dwarf, comparatively small, types and forms, particularly suited to the rock garden or the alpine house, we have something like half a hundred, some of which are deserving of places of honour in the most select collections. Normally " bell " flowers, the size and shape of the flowers varies from tiny nodding blossoms that might be termed " fairies' thimbles," to big pendant bells that seem almost too large for the stems to support. There are also kinds that turn their blossoms upward, cup-like, and some are flattened like saucers, or divided at the edges, making star-like blossoms. The smallest snug the soil and raise their flowers on stalks but a couple of inches high. Such are *C. cenisia*, *C. excisa*, *C. pulla* and *C. pusilla*, whilst *C. rupestris* and *C. garganica*, with

their clusters of tiny star flowers, lie almost flat upon the ground. All these miniature kinds make themselves a home in cool, semi-shaded nooks in the lower levels of the rockery, and they like leaf mould and sharp sand in fair proportion in their rooting medium.

Still diminutive in stature, but with larger flowers, we have *C. allioni* and *G. F. Wilson*, the latter a hybrid of rare quality. *C. carpathica* is a type of which many garden varieties of merit have been introduced, the average height being within 1 foot, and the flowers upturned, of saucer or shallow cup shape. About the same height are *C. rotundifolia*, in blue, white, and double-flowered forms,



CAMPANULA PUNCTATA.

and its varieties *Hostii* and *soldanelliflora plena*, *C. Tommasiniana*, *C. planiflora*, and several others. The clustered heads of sessile flowers of *C. glomerata* *Dahurica* afford us another distinctive form that is of interest, the hybrids *Van Houttei* and *Burghalti* are remarkable for the extreme length of their drooping bells. Practically all of the *Campanulas* do better in positions where for some part of the day they are shaded from the full glare of the sun, but with few exceptions they are quite simple in their requirements, and they may be planted with more confidence than most things in positions of total shade.

Slugs and snails are destructive to the soft young growths of the smaller *Campanulas*, and they also, together

with woodlice, frequently gnaw into the fleshy shoots and stems of the stouter kinds. Dusting with either soot or powdered lime will help to ward off these marauders, but search during the twilight of spring and summer evenings is a surer means of reducing the numbers of the pests. The tufted and prostrate growers divide with ease, the best time being late August and early September. Those that make stouter growth, with erect stems, will propagate from cuttings inserted in light sandy soil, whilst well defined species will generally reproduce themselves true from seed, although in some cases this is a slower method than propagation by division or cuttings.

Where a select few distinct and pleasing kinds of *Campanulas* are desired for a small garden, the following may be strongly recommended :

Allioni, 3 inches, large blue flowers. July to September.

Canescens, trailer, blue flowers, hoary leaves. June to August.

Carpathica " *Riverslea*," 1 foot, flat rich blue flowers. May to September.

Carpathica alba, pure white.

Carpathica turbinata, 6 inches, rich blue.

Garganica hirsuta, trailer, with racemes of starry blue flowers with white centres, hoary foliage. May to August.

Portenschlagiana bavarica, fine blue flowers on 3 to 4 inch stems. June to September.

Punctata, the dainty little plant figured in our illustration, with contracted tubular rather than bell-shaped blossoms.

Pusilla alba, 3 inches, white. June to September.

Rotundifolia flore pleno, 1 foot, double dark blue. June to September.

Rotundifolia soldanelliflora plena, semi-double.

Van Houttei, 2 feet, with spikes of very large pendent flowers of fine purple. June to August.

Zoysii, 3 inches, with large azure-blue flowers. Mid-summer.

CERATOSTIGMA PLUMBAGINIOIDES.—Saddled with an atrocious name, this is a plant of unique individuality and exceptional merit. First we may mention that it flowers in autumn, when many subjects have become colourless. Its flowers are of an uncommon shade of blue, generally described as cobalt blue. It throws up a quantity of erect red stems, clothed with large, particularly glossy and bright green foliage, which takes on delightful autumn tints of red and bronze. The best position for the plant is low on the rockery in a sunny position, with a good depth of soil, preferably turfy loam and fibrous peat. It will thrive in shade, but does not bloom so freely, and the foliage develops less colour than in a sunny spot. Cuttings taken off at a joint when about 3 inches long will root in sandy soil under a bell glass or hand light.

CODONOPSIS OVATA.—A trailing plant with bell-shaped flowers, outwardly of a greyish blue, the interior of the blossoms constitute the chief charm, for it is beautifully speckled with yellow and white. On this account the plant is particularly well adapted for growing over ledges of rock as high as will enable one to look up to its dangling blossoms.

CONVOLVULUS.—Totally distinct from the familiar annual types of this genus, there are a number of perennial dwarf and compact species that are particularly charming on account of their silvery foliage. *C. mauritanicus* has elegant growth and violet blossoms, which it continues to bear until well into autumn. *C. cantabrica* has blossoms of a pleasing shade of pink, and *C. spithamæus* has white flowers and grey foliage.

CORYDALIS.—For beauty of foliage and uncommon appearance of blossoms, some of the fumitories are among the finest plants for shady, moist situations. They are also particularly good plants for pot culture, giving to the alpine house a lightness and elegance usually associated with ferns. The plants make clumps that may be divided, the best season being spring, when young growth is starting. *C. angustifolia* is a white-flowered species of distinct character. *C. bracteata* has pale yellow, and *C. bulbosa* purple flowers. *C. thalictrifolia* is a large-flowered bright yellow, with beautiful fernlike leaves, and other useful varieties are *C. capnoides*, *C. nobilis*, and *C. tuberosa*.

It is advisable to afford the protection of a few stout bracken fronds, heather twigs, or similar material, as the young growths of *Corydalis* are very succulent, and liable to injury by frosty winds.

CYCLAMEN.—It is a remarkable fact that out of perhaps a dozen and a half or a score of species and varieties of hardy *Cyclamen*, we may select enough that produce their flowers at various seasons to ensure that our gardens shall have at least a few cyclamen blossoms every month in

the year. An additional charm is the handsome marbling and veining of the foliage, for few plants show such remarkably striking ornamentation in leaf as is seen in these dainty little gems, *C. ibericum* and *C. neapolitanum* being specially fine in this respect.

We may commence the year with *C. coum*, for an established plant will bloom in January unless absolutely held in an icy grip. The type has ruddy crimson blossoms, but there are pure white, pink, and lilac varieties. *C. libanoticum* is another of the earliest to bloom, and has white petals with a red base. Before these are over *C. ibericum* starts, there being several



HARDY CYCLAMEN.

varieties and colours of this species, of which *Atkinsonii* is one of the most effective, with white flowers based with a crimson blotch. *C. repandum* takes up the succession in April, and may be had in both red and white flowered forms. It goes on flowering until midsummer, and later bloomers are *C. europeum* and *C. neapolitanum*. Later still is *C. latifolium*, whilst *C. cilicicum* carries us on to November and even into December.

With so much to their credit, it might be supposed that no respectable collection of alpinses would fail to include hardy Cyclamen, but the fact that they are not so frequently seen as their merits would justify is, perhaps, a matter worthy of our consideration.

Hardy Cyclamen are not really difficult subjects to

grow, but there are just one or two points that have an important influence upon their welfare.

In the first place the *Cyclamen* are shade-loving plants, delighting to nestle at the base of a sheltering rock, under the grateful shade of conifers or spreading trees. They like a rich vegetable soil, but with a liberal admixture of mortar rubble or limestone. They do not like rough winds, that batter their foliage and may break the stalks of both leaves and blossoms, but by banking round with boulders, sufficient protection may easily be afforded. A certain amount of failure is undoubtedly due to planting at unsuitable seasons. The majority of hardy *Cyclamen* are imported as dry corms, but the trouble is that with the varied periods of growth and rest of the different species, there is no one time at which all the kinds may properly be imported or planted, and often the roots are stored in a dry state for so long a period that they become shrivelled and exhausted of all vitality. It is infinitely better to purchase sturdy established corms in pots, and although one such root may cost the price of three dry corms, the results in the long run will be far more gratifying. The early flowerers should be planted in autumn, the late blooming kinds in spring. Cover the corms with light soil, because roots will then be formed above as well as below the corms. An occasional mulching of good leaf mould will prove very beneficial.

CYPRIPEDIUM.—Choice and extremely beautiful, this genus of the orchid tribe contains some of the most delightful of plants for cool moist bays in the rock garden, where the soil is of a brown peaty nature. One exception,

however, may be made, for *C. calceolus*, which is a native plant, although but rarely to be found wild, likes a lime-impregnated soil of a fairly stiff character. This is a very beautiful plant, as indeed all the "lady's slippers" are. Its sepals and narrow strap-like petals are of a polished brown, the pouch or slipper is of clear yellow. *C. spectabile* is generally acclaimed the finest of the hardy kinds. It grows to a good height, frequently 2 feet or over, and the flowers are well set off by luxuriant foliage. The slipper, which is large and bold, is of a delightful rich rose pink, the rest of the flower being white. It is not at all difficult to grow, and once established in a good deep bed of peaty soil, where moisture is not scanty, it will grow in strength and beauty year by year. There are many other good *Cypripediums*, some being brightly and boldly coloured, and others quaintly and strikingly marked with shades of green and brown.

DAPHNE.—If for no other reason than that the *Daphnes* are among the most deliciously fragrant flowers that grow, we must include either the rosy pink *D. cneorum*, or the white-flowered *D. alpina* and *D. blagayana*, among the shrubby subjects in our collections of rock plants. Planted in sandy loam, layered when increase of stock is required, but otherwise left undisturbed, the *Daphnes* will delight every visitor to the garden with their rich perfume.

DIANTHUS.—The "Pink" tribe is a varied and very interesting family of hardy plants, the greater part of which are particularly well suited for the rock garden, where, so long as they have free drainage and a fair share of sunshine, they present no great cultural difficulties.

It is true, we may frequently hear the remark that, "there seems to be something wrong with the Dianthus," but generally speaking, the something that is wrong can without difficulty be detected, and turns out to be that the plants are not given a fair chance. None of the Pink family can endure coddling. They are no plants for the sheltered corner or recess, but should be high up, well exposed to fresh air and sunshine. Stagnant moisture is death to the Dianthus, and at planting time drainage must be carefully looked after. Nevertheless, the novice who learns this much sometimes goes wrong by fixing his plants in a stone heap, where insufficient soil for an adequate root run is available, and where the little soil there is will be baked bone dry the first fine week in spring. What is wanted is a good body of light porous soil, freely drained, with some surface stone to allow the herbage a dry bed in winter. The tendency under these conditions will be for some of the more robust to grow long, and eventually to get a lot of bare straggling stems with tufts of foliage at their ends. Much of this may be prevented by mulching with sharp gritty soil, and it will sometimes be desirable to peg down some of the shoots with hairpins or layering pegs before mulching. This treatment will be applicable to such as *D. plumarius*, and others of fairly strong growth, whilst the smaller tufted or cushion-like plants will require mulching only, the pegging down being impracticable. These closer-growing tufted kinds may be propagated by division, whilst the stouter growers will root from pipings or cuttings, the best time for both operations being as soon as possible after flowering. With at least



RAMONDIA NATHALIE

six dozen different species, varieties and hybrids available for the rock garden or alpine bed, it is not my intention to make a catalogue-like list of all, but would recommend that for a selection, the reader might well start with the Cheddar Pink, *D. cæsius*, in its single and double forms; *D. neglectus*, a close-growing species with bright rosy carmine blossoms; *C. alpinus*, a free-growing and free-flowering plant with spotted flowers; *D. superbus*, which bears richly fragrant, fimbriated flowers, of rich pink, on rather long stalks; and *D. deltoides*, "Brilliant," a prostrate plant with tiny foliage, and innumerable cherry-carmine blossoms. With these well established, further additions may be made as desired, the Mule Pinks, hybrids, with more or less double flowers on stiff stems, being very attractive. Napoleon III is one of the finest crimson flowers we may have in the rock garden, and there are others of similar character, with flowers of varied colours. The one point to watch with these, is that they are apt to flower with such profusion that they make practically no basal growths, and consequently die from sheer exhaustion. To maintain stock, therefore, it is well each season to pinch back a plant or two, to prevent blooming. They will then make sturdy basal growths, which, in due time, may be stripped off to make cuttings.

We have two yellow-flowered *Dianthus*, *D. knappii*, and *D. pubescens*, and there are a number of whites, and a few of rich crimson. *D. atkinsoni* is one of the best of the latter colour.

DODECATHEON.—There is something decidedly un-

common and extremely attractive about the Dodecatheons, which are particularly fine plants for moist, shady inlets or recesses in the rockery, or for a similarly cool position in the alpine bed, whilst they are choice and excellent subjects for pot culture, either in frames or the alpine house. A very appropriate arrangement is to intersperse a few Dodecatheons among the hardy Cyclamen, which require similar environment and cultural details, and the flowers of which bear some resemblance to the Dodecatheons except that the latter bear their blossoms on erect stems, high over the short-stalked Cyclamen.

D. media, of which there are variously tinted lilac, mauve and purple varieties, as well as white; *D. Clevelandi*, deep violet; *D. Jeffreyi*, clear rose; and *D. Hendersoni*, crimson, will afford a nice variety, but there are a number of other Dodecatheons, and all are beautiful. They like a peaty soil, and once planted should be allowed to develop without disturbance, mulching each year with well-rotted leaf mould. The plants will annually increase in size, and the stronger growing kinds will sometimes throw up a hefty flower spike, over 2 feet high, carrying many quaintly shaped and beautifully coloured flowers.

DRABA.—In dry sunny places, and in gritty soil, the Drabas will make cushions of spiny-looking green foliage, over which, in early spring, will be distributed, as though thrown lightly with a gentle hand, small stalkless, or almost stalkless, flower-heads of yellow, white, or rosy pink. The last-mentioned colour is that of *D. pyrenaica*; yellows are *azoides*, *aizoon*, *brunæfolia*, and *rigida*; whilst *alpina*, *altaica*, and *Mawii* are good whites, *tomentosa* having

silvery leaves as well as white blossoms. A shallow pan of *Draba mawii*, or *D. pyrenaica* may well be included in the collection of alpines for frame or house culture.

DRACOCEPHALUM.—It seems to me that a few members of this family deserve more attention than they, generally speaking, receive, for they are plants of great beauty, easy to grow, and wonderfully free flowering. *D. grandiflorum* is especially good. Its flower stems are only a few inches long, but the individual blossoms are quite 2 inches in length, and are of a shade of blue that may well compare with the much prized gentians. The plant spreads over a considerable area, and its flowering period extends from midsummer to Michaelmas. Then we have *D. Ruprechtii*, growing about a foot in height, with pale lilac flowers, and *D. alpinum* with bright blue flowers, on 6 inch stalks. There is no difficulty in cultivating *Dracocephalums*, and they make fine patches of colour after many of the spring flowers have passed away.

DRYAS.—If once a plant of *Dryas Drummondii*, or *D. octopetala* is well established, in a semi-shaded, well-drained position, with peaty soil for its roots to run in, and some stones for the prostrate twiggy growths and evergreen foliage to rest on, we have a feature of perpetual interest and beauty. The crimped netted foliage bears some resemblance to oak leaves, the flowers of *Drummondii* are of rich glowing yellow, and those of *octopetala*, eight-petalled, are glistening white. We have another white-flowered species in *integrifolia*, and *lanata* is a woolly-leaved variety of distinctive charm. Stems of *Dryas* may be rooted by layering or mulching with sand and peat,

well packed round the lower portion of the stem. The layers, when rooted, should be potted in sandy peat and loam, and from the pots they may be transplanted to their permanent quarters. Cuttings will root if stripped off with a heel, firmly fixed round the edge of a pot of sandy compost, and placed under a bell-glass in a shady place. The rooted cuttings should be potted and grown on until strong enough for planting; and once established, the main plant should not again be disturbed.

EPIGÆA REPENS.—Fully entitled to a place among choice and select plants, this uncommon and extremely beautiful evergreen creeper, with waxy white flowers, slightly tinted with red, and strongly perfumed, is perfectly easy to grow. Why, then, is it very seldom seen? To my mind, there can be but one explanation, that it is not so well known as its merits would warrant it to be, and when seen by strangers to its identity, the refined and dainty appearance of the plant induces the fear that it is a plant of difficult character and delicate constitution, and is consequently passed over. Some peat in the soil, in a fairly damp and shady position, is the sum total of the special requirements of *Epigæa repens*, and such are by no means prohibitive demands for a plant that will produce pleasing foliage winter and summer, a show of pretty flowers from April to the end of June, dispensing delicious fragrance as well as charming appearance. It is a plant for which a trial is only required, to ensure its rapid advancement to a position of great esteem.

EPIMEDIUM.—Quite unlike any other plant, and remarkably beautiful in foliage as well as flower, is my opinion

of this genus. One would not be doing wrong, even where space is limited, to introduce half a dozen sorts of *Epimediums*. The plants make compact, bushy clumps, the foliage being thin, fragile and dainty in appearance, but in reality, tough, strong and hard wearing. In spring the young leaves are flushed with rosy tints, later becoming soft green with delicate veining or netting, and again in autumn, the hardened leaves assume tints of bronze, chestnut and amber, the colours lingering practically through the winter. From early spring to midsummer, light shimmering racemes of quaintly beautiful flowers are borne on slender, arching stems, so coy and dainty that they seem shyly to half hide themselves among the foliage. They do not, in fact, compel attention by their ostentatious display, but rather may be said to veil their delightful charms for those who will seek them, and submit them to close inspection. Of colours, we may have clear and distinct shades and unusual combinations, *E. alpinum* and *E. rubrum* being both bright crimson and clear yellow, the last named bearing the larger and stronger flowers. *E. macranthum* is pearly white, as also is *musschianum*, both species having varieties with coloured flowers, *macranthum violaceum* being violet and *musschianum rubrum* a bright red. *E. pinnatum*, and *E. perralderianum* are yellows, and both have particularly fine foliage. Deep soil, of a fibrous or spongy nature, suits the *Epimediums* better than a tenacious clay, and during the growing season, from March to September, the plants enjoy copious supplies of water.

ERINUS ALPINUS.—A pretty plant with crimped-edged

foliage, pretty in summer and winter alike, the *Erinus*, in rose, red, purple, and white forms, will make itself perfectly at home in chinks of rock-work, crannies in rough stone walls, or in beds of stony soil on the flat. A few seeds scattered in spring will suffice to establish the stock, and thenceforward self-sown seedlings will plentifully appear. The blossoms are small individually, but collectively are so numerous as to produce a good colour effect.

ERICA.—When one sees the broad expanse of heather that grows untended and unsheltered on many a moor and rough mountain side, it is pardonable to at once conclude that here, at any rate, is a plant that may be grown with the greatest possible ease, and that should thrive remarkably well when afforded the careful attention we would willingly bestow upon it whilst it occupies a favoured spot among our most cherished plants. Fact, however, upsets mere calculation, and our efforts to carefully attend the *Ericas* will but end in, and probably hasten, failure, if, by careful attention we mean fussing with the water-pot, with fertilizers, and insecticides, for these are just things the heather will not tolerate. There are two points of supreme importance that must be closely observed if we would establish a colony of hardy *Ericas*, the first is that they belong to that class of plants which require no lime, and that cannot thrive if any appreciable quantity of lime is in contact with their roots. Peat is therefore their most appropriate rooting medium, and it is, in fact, on peat beds those broad expanses of heather are found that delight us when mountaineering or

tramping the moors. The second point, and it is every bit as important as the first, is that unless an *Erica* has sufficient young fibrous roots to enable it to be lifted without baring the main, hardened roots, the chances of successful transplanting are very feeble. Frequently a good peat bed is made up, and an order is given for plants with insistence that they must be *good strong clumps*. That means, that plants of several years' growth are raised, and almost wrenched from their root hold, and are planted in the newly made peat bed. For awhile, they appear to be all right, but the hard, woody roots take no hold, and in a few months the branches became defoliated and eventually die. The eagerness to secure big plants is the cause of failure.

Start with the smallest plants possible, and when they come to hand, plant in such a manner that all the lower part of the branches, as well as the roots, shall be below the surface. Do not merely make a hole and cram the whole mass into it, but spread out the growths to cover the greatest possible area, working peat between the branches with the fingers, and ramming it firm with a blunt-ended stick. Soak the bed thoroughly with rain water, and then let well alone.

Thus treated, colonies of hardy *Ericas* are an endless delight, and they may be made a great feature, because it is possible to have some species or variety in bloom at every season of the year.

E. carnea, bright red, and its white variety, *carnea alba*, blooms throughout the first four or five months of the year. *E. mediterranea*, and *mediterranea hibernica*,

will also bloom in January and onward to the end of March. *E. vagans* and its varieties are summer flowering, and *E. ciliaris*, *E. cineria*, and others, take up the sequence in autumn and retain their beauty well into winter.

ERODIUM.—The members of this genus are closely allied to the herbaceous *Geraniums*, the similarity being quaintly symbolized in the English names of the two. The *geranium* is known as the Crane's Bill, whilst the *Erodium* is the Heron's Bill. There are vigorous, hardy, and very easily grown species in the family, and a few others that are dainty little gems with prettily cut foliage, ruddy stems and exquisitely veined flowers. These latter require rather better quarters than will suffice for the strong growers, peaty soil, and shelter from rough winds and scorching sun being their chief requirements.

No fear need be entertained in regard to *E. macradenium*, or *Manescavi*, both of which are fairly large purple-flowered plants, or of *pelargonifolium* and *trichomanefolium*, which are white, marked with purplish red, for these will thrive even in poor hungry soil on a dry bank. The daintier and choicer kinds include *chamædryoides* with pretty pink veined flowers, *guttalum* with white flowers veined with violet, and whitish silky-haired foliage, and *chrysanthum*, a rarity with delicately made sulphur yellow blossoms. *Macradenium* and *pelargonifolium* exceed a foot in height, the others rarely reaching more than 6 inches. *Erodiums* seed freely, and the seeds should be sown in sandy compost as soon as ripe. The plants should be put into permanent positions at an early age and left undisturbed. It is possible to divide large clumps, but this method of

propagation is not invariably satisfactory, as the torn roots are liable to rot instead of making new fibres.

ERYTHRONIUM.—Whether grown in patches in sheltered nooks upon the rockery, in the slightly raised alpine bed, or in pots and pans to flower in the alpine house or frame, the Erythroniums are plants of uncommon daintiness and charm. The first attraction is their prettily mottled foliage, and for this alone in the early months of the year the plant is well worth growing. The flowers are, however, delightful both on account of their quaint shape and their delicate tints. *E. dens. canis.* (Dog's tooth) is procurable in several varieties and different colours, lilac, lavender, rosy pink, white, and purplish red are all pretty, and there are a few other less common species available. The roots are fleshy corms, and whenever a clump becomes overcrowded it may be carefully lifted when the foliage has ripened off, and the corms separated for replanting. Erythroniums enjoy plenty of water so long as their foliage is above ground, but should be kept comparatively dry during the dormant season.



ERYTHRONIUM. (THE DOG'S-TOOTH VIOLET.)

GALIUM.—Feathery, airy lightness is elegantly exemplified by the Galiums which make slender growths clothed with light foliage, and bear tiny flowers, but bear them in such profusion that they appear when disturbed by the slightest breeze to be just a smoke-like or vaporous mass.

G. verum, the cheese rennet used for curdling milk, has yellow flowers, as also has *G. cruciatum*, whilst *boreale* is white, and *rubrum* is a brownish red of quite a pleasing character. The *Galiums* require to be planted in fair-sized masses to produce a satisfying effect, but the ground between the plants may very well be planted with *Fritillarias*, *Scillas*, or *Dodecatheons*, thus adding to the interest of the patch.

GAZANIA.—The *Gazanias*, like the *Mesembryanthemums*, are so brilliant in colour and strikingly effective that although it is only in specially favoured localities and on very well-drained soils that they may be depended upon to survive the winter in the open, I cannot omit them on account of their exceptional merits as subjects for pot culture for the alpine house. Dwarf in stature, with emerald-green leaves edged with silver and gold, and with a white tomentum covering the reverse of the leaves, the *Gazanias* produce blossoms of a size remarkable for so dwarf a plant. The predominant colour is vivid orange, but the daisy-shaped blossoms are handsomely marked, *G. splendens* having a zone of glossy black, with eye-like spots of pure white surrounding the disc. *G. pavonia* has white, green, and chocolate markings in the centre of the flowers, and the plants continue to bloom for a very prolonged season.

They may be easily propagated from cuttings taken during early autumn, using liberal quantities of sand in the compost. Where a stock is grown in pots it is well worth while propagating some for planting in the rock garden in spring, for even one season's flowering amply

repays the trouble of annual replenishment if winter kills the plants left out.

GENTIANA.—As mentioned in the previous chapter, the Gentians are held so highly in esteem that everybody desires to grow them, and it seems a strange thing that whilst in some gardens the majority of them will thrive as well as the commonest among garden flowers, we find many instances where, despite elaborate preparations and much anxious care, the plants merely exist, and but seldom blossom.

The fact is that more often than not the elaborate preparations are in reality the plant's undoing. We find, maybe, a nice cosy bed with leaf soil, peat, and perhaps manure provided with a liberal hand, in order that the plants may make good growth, but that is mistaken kindness. What the Gentians really want is first, free drainage, second, a fairly stiff soil, of a substantial loamy nature, plenty of coarse grit and stone chippings to keep the soil open, and then firm planting. *G. acaulis*, the general favourite with its large upturned bells of heavenly blue, and its quaintly yellow and green painted interior, and *G. verna*, the small but intensely brilliant blue miniature, both prefer to have their tufted growths wedged tightly between fragments of porous stone, and the harder the stones can be pressed down, without, of course, breaking or bruising the growths, the better the plant will thrive. The remaining requirements are abundance of water from spring to midsummer, and exposure to the sun. The Gentian family is a very large one, considerably more than half a hundred species and varieties being in culti

vation. Not all are blue, nor are all of the same close-growing, stalkless habit of growth of the familiar *acaulis*. *G. asclepiadea* often grows erect to a height of well over a foot, bearing blossoms of purple wellnigh the whole length of the stem. *G. Burseri* and *G. lutea* are both yellow, and are tall enough to associate with the pentstemons and phloxes of the herbaceous border, but one of the finest additions, not only to this rich family but to the whole range of rock plants, is *G. Farreri*, the subject of our coloured plate. The artist's reproduction from life of this gem among flowering plants conveys better than words can do an idea of the loveliness of the blossoms, but even this cannot accurately portray the glistening sheen that overlays the petals, giving them something of the lustre seen on some tropical bird's plumage. *Gentiana Farreri* is essentially a plant for the most select collections of rock plants, and is a subject *par excellence* for cultivation in pans for the alpine house.

Most *Gentians* can be raised from seed, if the seed is sown soon after ripening. Those of tufted growth may also be divided.

HABERLEA RHODOPENSIS.—Lovers of the aristocratic and altogether lovely *Ramondias* will be compelled to share their affections with *Haberlea rhodopensis*, for it is a plant of very similar character, and also of similar cultural requirements. It spreads its crimped and crumpled foliage in flat plate-like discs from the centre of which rise the flower stalks, carrying pendent tubular blossoms of a soft rosy lilac with a tinge of pale yellow in the throat. The plant likes peaty soil for its roots, and a

shady situation. During the growing season plenty of water will be enjoyed, but during winter the crowns and foliage cannot endure continuous wet. Either, therefore, the plants should be wedged between the perpendicular rocks of a shady watercourse, or they must be afforded the protection of a sheltering sheet of glass during winter as recommended for plants of silky or woolly foliage. The latter is probably the safer method for the novice to adopt, for it is not a simple matter to so fix a plant in a perpendicular wall or rock formation that it may reach with ease the moisture its roots must have access to during summer.

HACQUETIA EPIPACTIS.—This is one of the quaintest little spring flowering plants, well worthy of inclusion in any collection, because of the interest it will arouse quite early in the year when flowers are very few. The blossoms open almost green, but the petals change to yellow, and are thrown into relief by a frill like an Elizabethan ruffle of amber-tinted bracts. The plant should be kept near by stepping-stones or pathways to facilitate the close inspection necessary to fully appreciate its peculiar charms.

INCARVILLEA GRANDIFLORA.—there is no plant quite like *Incarvillea grandiflora*, and it should be afforded a place of honour in the best available position on the rockery, or in the foreground of the alpine bed. As a subject for pot culture, too, it is of superior merit, but its large tuberous roots necessitate a large pot, and as it flowers in summer accommodation in a frame where plenty of air can be given is preferable to the alpine house.

To describe the plant one may liken its leaves to those of the taller and larger *Incarvillea Delavayi*, prince among border perennials. They are flat, long, of rich green, deeply notched at the edges, and radiating from a central crown. The flower stalks are short, but stand erect from the centre of the crown, and the handsome flowers are trumpet shaped with broad flattened margins. The colour is a rose-cerise, bordering on crimson, the interior of the tube or throat being creamy yellow. There is a lustrous gloss over the flower reminiscent of the *Gloxinia*, and an established plant in bloom is an object for fervent admiration. To secure success with this lovely plant is worth some effort, and the first thing to do is to prepare a deep, well-drained root run. Dig down a couple of feet at least, and break up the bottom of the hole. Put in a good layer of crocks, and fill in the hole with sandy loam with an admixture of well rotted manure. Press the soil firmly about the thick, fleshy, tuberous roots, and allow the crown to remain just visible at the surface of the soil. During the growing and flowering period the plants enjoy liberal supplies of water. After flowering they should be kept comparatively dry for awhile, so that the crowns and tubers are well ripened. A sheet of glass tilted over the plants during October will suffice to ward off rains, but by the latter end of November the glass may be removed, and a little mound of sharp silver sand may be placed over the crown. Year by year the plant will, if undisturbed but periodically afforded nourishment, increase in strength and vigour, producing an increasing number of its glorious flowers. Seeds germinate freely if sown as soon as ripe,

and the seedlings should be kept growing steadily through their first winter in a greenhouse just sufficiently warmed to keep out frost.

IRIS.—This is another of those wonderfully rich and varied families of plants that may well provide material for a comprehensive volume, but which the cleverest of writers can never adequately describe when bound by narrow limits of space. Even when we dispense with all the large strong-growing types and species that are rightly considered border plants and not rock plants, and eliminate those that belong to the water and bog garden, confining ourselves rigidly to the smaller kinds for which the rockery is the ideal home, we still have a list of species and their varieties that to name even, without enlarging upon their merits and cultural requirements, would require too great a space for our present possibilities. Nor is it perhaps desirable that in a work of general character written principally to aid the beginner and novice who seeks to acquire knowledge that will assist in forming and cultivating a collection of rock plants, an attempt should be made to wade gradually through the whole of this extensive family, for although for the most part Irises are quite easily grown, there are some types and species that are more exacting and somewhat difficult, and these are better left until study and experience enables the amateur to extend his attention to them with some degree of confidence.

For the ordinary positions on the average rockery, or in the alpine bed of a small garden, the pumila group may well be among the first to be installed. Of dwarf stature, the flower spikes rising only 3 or 4 inches from the

ground, the growth may be compared to that of the German or flag Iris on a diminutive scale ; the flowers, however, are not reduced in the same proportion as the stems and foliage. Quite a number of named garden varieties of *I. pumila* are in cultivation, several of them having effective combinations of blue, purple and lavender in their colouring. There are, however, yellows, and white grounds with varied pencillings and feathering of either blue or brown. The plants grow from rhizomes which should be kept at the ground level when planting, and the best time to divide and replant is within two or three weeks of their passing out of bloom. For a month or so after planting it will be necessary to pay some attention to watering, but after the plants have made good root and become well settled in their new quarters they will be well able to look after themselves. *Iris pumila* in such varieties as *bicolor*, *lutea maculata*, *versicolor*, *aquiloba* and *cærulea* make excellent subjects for the alpine house, planted in pans, and moderately fed with weak liquid manure while the flower buds are developing. Those who wish to have a more extensive selection of irises in their alpine collection will find excellent material either for the rockery, the alpine bed, or the alpine house in *I. cristata*, with blue and lilac blossoms veined with golden yellow ; *I. Douglasiana*, rich violet ; and *I. Korolkowi*, a very lovely flower with brown netting over a white ground. The bulbous *I. reticulata* should certainly not be omitted, the bulbs being planted in autumn, choosing positions where jutting stones will afford shelter for the precocious little blossoms. In due time the rather more exacting

kinds may be tried, and the weirdly beautiful mourning Iris, *I. susiana*, may form a companion to *I. Korolkowi*, and the varieties of *I. unguicularis*, of which there are several, may be either planted where protection may be afforded their early flowers, or put up in pans for flowering under glass. Indeed, one may go on for years adding to an Iris collection and find an absorbing interest in their varying forms and colours akin to that associated with a collection of orchids.

LEONTOPODIUM ALPINUM (Edelweiss).—A flower of romance, sentiment, and strange fascination, the Edelweiss is charged with being responsible for many tragedies. It is very strange that this plant, undeniably beautiful, but by no means as bright and showy as many other Alpines, should have drawn many a mountaineer beyond the point where experienced judgment would bid him venture, and strange also that the delusion should commonly prevail that the plant is obstinately difficult to grow. As a matter of fact, the Edelweiss is as simple in its requirements and as good natured in its response to quite ordinary cultural care as the majority of the plants we describe as being of easy culture. It likes a well-drained soil with a fair amount of grit and some lime and as to the staple character of the soil it matters little whether it is of a light loamy nature, fibrous peat, or even



LEONTOPODIUM ALPINUM.
(THE EDELWEISS.)

a stiff clay. The presence of lime in the soil results in a whiter tomentum, the stems and bracts around the flowers being densely covered with almost a furry coating. The name *alpinum* is generally applied to the Swiss Edelweiss, but the Austrian, Himalayan and Siberian forms are really variations of the same species.

Well-developed clumps may be divided in spring, but a more satisfactory means of increasing stock is by sowing seeds as soon as ripe, sifting sharp sand, a little finely pulverized mortar rubble and powdered charcoal over the surface of the seed-pan. Another name frequently applied to the Edelweiss is *Gnaphalium Leontopodium*, but *Leontopodium alpinum* is the correct botanical name.

LEWISIA REDIVIVA.—This is another plant of such striking beauty that it must be made much of for the alpine house, even though for rock-garden culture it presents difficulties on account of the necessity to keep the roots dry during the dormant period. *Lewisia* makes a spreading rosette of narrow fleshy leaves radiating in starry formation from a stout hub-like crown. From the crown the flowers issue on stalks about 3 or 4 inches long. They are of an almost cerise tone of colour, which appears the brighter on account of a glossy, satiny sheen that overlays the petals. Good loam and sharp grit should form the compost, and whilst in growth water should be freely supplied, gradually withholding when the flowering season is over.

Home-saved seed will provide the best means of propagation, and it is best sown quite early in the year, that the seedlings may make plump "crowns" before the first resting period arrives.

LINARIA.—Among the members of this genus we have some of the daintiest little trailers for the stony areas of the rock garden or for tumbling over the face of a rough stone wall. *L. hepaticæfolia* is one of the smallest of plants, scarcely attaining 1 inch in height. Its foliage is like a minute ivy leaf, its flowers are lilac, peeping out among the leaves like beads scattered over a velvet cushion. *L. pilosa* is another tiny plant with pilose or hoary stems. The leaves are green above and red underneath, and the flowers purple with a blotch of yellow at the nose, the blossoms of all the *Linarias* being shaped like miniature *antirrhinums*. *L. repens*, "Snowflake," is of semi-prostrate habit and rambling growth. The much branched stems are wiry, well furnished with narrow, pointed, pale-green leaves, and at the ends of the branches and side stems appear innumerable tiny flowers of pure white. The plant continues to bloom for months, and presents a delightfully light and airy appearance. Even as a cut flower for intermixing with larger blooms of bright colours the Snowflake *Linaria* is exceptionally useful, and altogether it is a plant to seek and cherish.

Other desirable *Linarias* are *origanifolia*, with slender spikes of violet orange-throated flowers; *pallida*, with individual flowers of purple, which are large by comparison with the total size of the plant; *L. alpina*, and its varieties *rosea*, *pallida*, *alba*, and *reticulata*, all of which make twiggy green stems clothed with narrow glaucous green foliage; and the familiar ivy-leaved toad flax, *L. cymbalaria*, which grows in the chinks of old walls and even drapes hard-faced flints with refreshing greenery. This plant

seems to be incessantly in bloom, and is a fine subject for high and dry positions. Most *Linarias*, however, prefer shade and moisture, and will effectively carpet the ground as well as curtain rocky boulders or stone walls.

LINNÆA BOREALIS.—Named after the great botanist, Linnæus, this is a modest but exquisite and lovable little plant that thrives best in some cool shady place, as though too shy to flaunt itself before the crowd. Its prostrate stems are clothed with pretty foliage upon which bronzy tints mix with green. The blossoms, borne in pairs at intervals along the stems, are of a pretty shade of pink. They are sweetly fragrant, and altogether charming. Layering will be found the best means of increasing stock.

LINUM.—The flax family contains a number of delightful free-flowering plants that are of elegant growth and easy culture. *Linum alpinum* is blue flowered, growing about 6 inches high; *L. austriacum* is of taller growth with flowers of a lighter shade of blue; and *L. narbonense* is still another blue of much beauty, and *L. perenne* is still another. Then we have *L. flavum*, throwing clusters of brightest yellow blossoms, and *arboreum*, also yellow of shrubby growth, and *monogynum*, with pure white flowers. There are several other sorts, but those named provide us with a selection of the best. All may be raised from seed, and should be planted in batches of several plants rather than dotted about singly. Ordinary soil suffices, and when once planted it is unwise to disturb the roots.

LITHOSPERMUM.—Compel me to limit myself to a dozen alpine plants, and *Lithospermum prostratum* in its variety "Heavenly Blue" must be one of them, and I believe

the vast majority of enthusiasts for rock gardening would say the same. It is a plant that instantly attracts attention, and annexes affection that grows as surely as the plant itself. Shrubby in habit, with evergreen foliage, the plant may be said to bloom in every month of the year, for when well established in a sunny position and well-drained soil, one may almost always find a flower or two at least, whilst from May to July the whole plant is freely besprinkled with its intense blue flowers. Cuttings peeled off from the sides of the branches, when about an inch long, and inserted round the edge of a pot of light sandy soil, will root if kept close in a cool situation. Side branches may also be weighted down with stones and will root in the course of a season, so that the layered limb may be severed and removed in the form of an already well-developed plant. The main part of an established plant should not be disturbed, for the roots are hard and wiry and do not take kindly to fresh soil when broken.

There are several other *Lithospermums* that are quite good plants, although none quite the equal of *prostratum*. *L. canescens* and *L. hirtum* are yellow flowered with hoary foliage. *L. angustifolium* is also yellow, and its variety *longifolium* is sulphur coloured. Then we have *L. graminifolium* (grassy leaved), with rich blue flowers in pendent clusters. *L. rosmarinifolium* is yet another interesting plant, the flowers of which are blue with white stripes. This species, however, is a little more difficult to manage, and requires the protection of a glass shade or hand-light in winter except in favoured and sheltered gardens.

LYCHNIS.—For bright colours and freedom of flowering several species and varieties of *Lychnis* clamour for inclusion in any collection of Alpines that aims at bright effects. *L. alpina*, with its closely set, bright rose-coloured flowers, is a capital plant of easy growth. *L. fulgens* gives us a splash of striking scarlet, the blossoms being large for a plant growing only about half a foot high. *L. Lagasæ*, another rose-coloured kind, becomes literally covered with bloom from early May onwards to late summer, and there are many shades of pink, salmon, terra-cotta, and scarlet in the hybrids of *L. haageana*, which may be easily raised from seed. There are white forms of several of the species, but they lack the attractiveness of the coloured types. *Lychnis* present little difficulty so far as culture is concerned, for they will grow in most soils, and only ask some sunshine to throw up the brightness of their colours.

In most cases they form clumps of tufted growths which divide with ease, whilst seed grows freely and can be fairly well relied upon to come true.

MACROTOMIA ECHIOIDES.—There is a unique charm about this plant which endears itself to those who study their plants individually at close quarters. Of rather compact growth, with light green leaves, the plant throws up flower spikes about 9 inches high with terminal bunches of light yellow blossoms somewhat resembling a primula in shape. Around each corolla are distributed five evenly defined spots of rich velvety purple, the effect being striking in its unusual character. To see a clump with a number of well-developed flower heads is a remarkably

pretty sight, and the plant is one that should not be overlooked. Seed will provide stock, and cuttings of young growths may also be rooted in sandy soil.

MECONOPSIS.—Whatever plant has poppy-like blossoms must possess refined grace and elegance, and the *Meconopsis* in their several distinct species and rich varieties are no exceptions; indeed, the whole family may claim to possess grace and elegance in superlative degree.

Some of the *Meconopsis* are so strong and tall in growth that they can only be accommodated on rockeries of considerable extent, but these fully deserve places of special prominence in the herbaceous border.

For the small rockery the "Welsh Poppy," *Meconopsis cambrica*, in its yellow and orange, single and double forms will form an ever-pleasing feature. The plant grows freely, and blossoms profusely throughout the summer months.

MENTHA REQUIENI.—This is one of the tiniest flowers in cultivation; in fact, the whole plant is of microscopic proportions as compared with the commoner mints of the kitchen garden. The slender thread-like stems creep over the ground much after the manner of *Arenaria balearica*, and are densely clothed with minute leaves which when bruised emit a distinct menthol aroma. The flowers are deep mauve, or perhaps pale purple, so small are they that it is not easy to precisely describe the tint, but nevertheless they are quite effective against the green foliage when the plant has spread over a fair area, and under a magnifying glass they reveal intricate formation. A cool, moist, and partially shaded situation suits the plant

best, but it will spread itself over soil and stones alike, and cover them so closely that every little irregularity of contour is followed.

MESEMBRYANTHEMUM.—This genus embraces a large number of interesting plants of succulent growth, producing for the most part blossoms of strikingly brilliant colours with a sheen comparable to fine satin. For hot dry slopes they are admirable subjects in summer, and some are hardy enough to withstand our average winters. It is, however, as particularly interesting and effective subjects for the alpine house they are to be most strongly recommended. They will thrive best potted in stiff loam, mortar rubble and coarse grit, propagation being by means of cuttings stripped off the stems or by layering the ripening growths into pots conveniently placed around the plants.

MORISIA HYPOGÆA.—A plant unlike any other, the *Morisia* is a capital subject for a position where running water is constantly filtering through a bed of stony, gritty deposits but is never stagnant. It may also be successfully grown in shallow pans, if only the pans are placed to the rim in water for an hour at intervals of a few days, and then hoisted on to inverted pots to thoroughly drain

Morisia hypogæa makes rosettes of shining green foliage with deeply-cut edges, the rosettes nestling close to the soil. The blossoms, almost stalkless, are four petalled and of the brightest, purest yellow. The earliest blossoms may appear before the end of February, and the plant continues to bloom until past midsummer.

OMPHALODES LUCILIÆ.—Imagine the scintillating tints

of a choice opal being transferred to the gossamer petals of a dainty forget-me-not of about double the ordinary size, the flowers gracefully poised on slender stems clothed with foliage that is glaucous, or powdered grey, rather than green. Thus may one conjure up a fair vision of what *Omphalodes luciliæ* is like, and another way of describing it would be to say that it is one of the sweetest, daintiest, and prettiest little flowers that grow. Such a



OMPHALODES LUCILIÆ SURROUNDED BY A FENCE OF PERFORATED ZINC TO WARD OFF SLUGS.

plant is worth taking some pains to grow, and it must be admitted that it does want some care and attention.

The chief difficulty is to prevent slugs devouring the soft, succulent growths, for which they evince a vexing partiality. My safeguard is to encircle each plant with a band of perforated zinc about an inch in depth. A friend who gave me this hint some years ago insisted that

the zinc should be bent in a hoop with the ends just meeting, and that the lower edge must touch soil all round. His theory was that observance of these two points ensured the setting up of a galvanic or electrical current which prevents slugs crawling over the zinc. I am not prepared to vouch for the validity of that claim, but when putting down the zinc fence it is easy to be exact in these two details, and whatever the real reason I can certainly say I have found this little appliance quite an effective safeguard against slugs.

OMPHALODES NITIDA is another choice kind that should also be included in the choicest collections either for the rockery or the alpine house. The flowers are sky blue, borne in spikes of good length. Cuttings of young growth may be rooted, but require closely watching in regard to watering.

ONOSMA.—Ranking among the choicest of alpine plants, *Onosma echioides*, or, as it is perhaps more frequently called, *Onosma tauricum*, is an altogether lovely plant. Its inflated bell-shaped flowers, borne in clusters on arching stems, are of a rich yellow, "Golden Drop" being an appropriate common name for the plant. It is hardy, despite the fact that it is not invariably a success, but failure will generally be traceable to the choice of a position where moisture and shelter combine to produce a soft, sappy growth. The *Onosmas* must have a thoroughly well-drained soil, and a fully-exposed position where sun and wind will ripen every stem before winter sets in. There are several species besides *O. echioides*, *O. albo-roseum* being one that is of very easy culture.

OURISIA COCCINEA.—To have a plant with blossoms of outstanding brilliance that will thrive in shade is a special boon, for it may be used to great advantage as a contrast to the blues and purples of *Veronicas* and *Campanulas* and the yellows of *Oenotheras*, *Ranunculus*, *Drabas*, etc., or the whites of the mossy *Saxafragas*. *Ourisia coccinea* is therefore a plant we may cordially welcome. Its blossoms are like shining coral, the effect being enhanced by conspicuous white stamens. The flowering season is prolonged, spring, summer, and autumn finding the plants continuously in bloom. Cuttings will provide young stock, whilst a two or three-year-old clump will divide.

PAROCHETUS COMMUNIS.—It is somewhat difficult to account for the fact that this unique little trailer remains uncommon and apparently slighted, for it is a sweetly pretty plant of quite distinct character, and has been in this country for fully a century, and yet is not often seen in the average collection of rock plants. Of trailing habit, the slender stems are clothed with three-lobed leaves, with a dark zone in the leaflets. The flowers are blue of a very rich dark shade, pea-shaped, sometimes borne singly and sometimes in twos and threes on short foot-stalks from the axils of the leaves. The flowering period extends throughout the summer months, and the plant grows well in ordinary soil either on flat patches of the rockery or in the alpine bed.

PENTSTEMON.—Many garden owners have collections or selections of large flowered *Pentstemons* of what we term the "florists' varieties," and a very handsome and useful class of plants they are, but it is not of these I

must write at present, for they are not within the legitimate scope of this work, albeit the large flowered Pentstemons do sometimes find their uses in large rock gardens or where a rock bank merges into a broad expanse of border perennials. There are, however, quite a large number of dwarf-growing species with comparatively small but strikingly coloured flowers, and which in character, habit of growth, and hardiness are appropriate for the collection of alpine and kindred rock plants. The majority are of American nativity, but come from the higher altitudes, the Rocky Mountains giving us some, and a few coming from Mexico. A few kinds are not absolutely hardy, but on the whole my experience of the Pentstemons is that they generally get more coddling than is good for them, and provided they are given thoroughly good drainage, with plenty of grit in the soil, most of them will pass through our winters unharmed, and even where frost kills the stems the stools throw up vigorous new growth in spring.

The sub-shrubby kinds are easily propagated from cuttings of the young growth, either in spring or in early autumn, the latter being given the protection of a cold frame during their first winter. A few make tufted growth of a herbaceous character, and these may be divided and transplanted in spring. Seed also affords a means of rapid increase of stock, but in most cases the seedlings are prone to considerable variation in colour and form, and it is advisable to select the best forms and purest colours for further increase from cuttings.

P. heterophyllus is one of the most pleasing for either

the rockery or the alpine bed. It makes shrubby little plants about 9 inches to a foot in height, producing numerous spikes of tubular flowers of a lively ruddy purple. *P. Menziesii* is dwarfer, the shade of purple leans more toward violet, and the plant is neat and always pleasing.

Very showy, with bright shining scarlet flowers, is *P. Murrayanus*, growing about a foot in height, and another distinct and pretty plant is *P. Watsonii*, the flowers of which are mainly purple, but sometimes mixed with white.

P. humilis is one of the dwarfiest of the tribe, with blue flowers in close heads, and another ideal plant for the rockery or for the alpine frame is *P. Hallii*, with flowers of a mauve shade verging on to violet. Of *Pentstemon glaber* we have several varieties, and all are good. Colours vary from rosy pink to lavender blue and rosy purple. The growth is tufted, with rosettes of long glossy foliage of a light shade of green.

Quite a contrast and an uncommon note in the genus is afforded by *P. antirrhinoides*, which has yellow flowers, and with these one may consider he has a fairly representative collection of the dwarf-growing species most suitable for an Alpine garden.

PHLOX.—This is another extensive family that gives us, in addition to the universally popular large-flowered border varieties of the florist, quite an array of dwarf-growing, early and free-blooming plants for the various purposes with which we are now concerned. There is no real difficulty about the successful culture of alpine Phlox, yet it must be admitted that failures are frequent, quite a lot of plants dying off without apparent cause

after they have flowered profusely for one or perhaps two seasons. A word of explanation may serve to show how these collapses may be avoided.

The Phloxes are among those plants that grow on their native mountains in broad masses where avalanche and torrent sweeping down the mountain side during spring thaws carry down grit, decaying vegetation, and fragments of rock that smother the plants with what we are accustomed to call a natural mulching. The Phloxes have become so accustomed to this rough-and-ready care of nature that they thrust forward their leafy growths on the extremities of long bare stems. Then when these stems are buried in the gritty mixture that is washed down upon them, they throw out innumerable roots, and the plants renew growth with greater vigour and over a still greater area. In our gardens the mulching of the plants is too often neglected. The long, bare stems are produced, but they are left exposed to drying wind, frost, and sun, with the consequence that they become hardened and shrivelled to such an extent that they become incapable of conveying sap from the roots to the starving growths at their extremities. A season's flowering under these conditions so completely exhausts these growths that they collapse, and the whole plant dies off. A common practice is to cut back the old growths, inducing the plants to break up afresh from the base. They will do this, but to compel them to do so season after season is to weaken the growth and exhaust the root system. A far better plan is to trim out the smaller weak growths after flowering, peg down the long rambling stems with hairpins and

cover with a couple of inches of light soil freely intermixed with sand, sifted mortar, rubble, or limestone chippings. Allow just the green growths to peep through the mulch, and the result will be a luxurious carpet of foliage and a great sheet of glorious colour the following spring. Furthermore, plants treated in this way can at any time during late summer or autumn be lifted, divided, and replanted, a better method of increasing stock than striking cuttings. The species *subulata*, with its many varieties, is a group to which the foregoing remarks particularly apply, but *P. amœna*, *P. stellaria* and its varieties, and *P. verna* may all with advantage be similarly treated.

P. divaricata and its varieties, such as *canadensis*, *Laphami*, *alba*, and others, constitute a group of different habit. They form clumps or tufts from which flower spikes rise erect. These do not require mulching, but should have their flower spikes cut back when flowering has ceased, and the plants may be nourished with a sprinkling of good fertilizer or with liquid manure. Large roots may be divided, or cuttings of young growth from the base may be rooted in sandy soil.

The phloxes are superb plants for the alpine house or frame. Pans of *P. stellaria* or *subulata* varieties, pots of *divaricata* or *P. ovata*, and of any other of the dwarf and trailing members of the genus, are extremely effective and will grow with quite ordinary care.

PHUOPSIS STYLOSA.—A trailing plant with slender wiry stems clothed with light airy foliage, and producing throughout summer masses of lively pink tubular flowers, the *Phuopsis*, or *Crucianella* is dainty and charming. It

likes a fair amount of moisture during the growing season, and thrives better in partial shade than in the full glare of the sun. May be propagated by division soon after flowering.

PHYTEUMA.—Some members of this family are perhaps eligible for inclusion in our preceding group of plants, whilst, so far as special cultural care is concerned, the chief essential in regard to the choicest is to guard against the ravages of slugs and woodlice. The whole genus, however, is commendable for distinct character and beauty, and some of the stronger growers, such as *P. campanuloides*, *P. orbiculare*, and both the blue and white forms of *P. spicatum*, may be grown in the alpine bed or on the rockery by novice as well as expert.

Blue in rich shades is the predominant colour, the blossoms being more or less tubular, with inflations that give them something of a bottle-shaped appearance that led to the common name of "bottle flower."

PLATYCODON.—Closely allied to the Campanulas, and, in fact, sometimes catalogued as *Campanula grandiflora*, *Platycodon grandiflorum* and its varieties provide us with a group of very handsome plants of distinct character and great beauty. The roots are fleshy, tuberous, and deeply penetrating, the foliage is of a slightly glaucous tint, and the flowers are large, saucer-like in shape, with pointed margins. The type is blue, with purple veins running through the petals, and there are white, pale greyish lavender, semi-double, dwarf, and late flowering variations from the type, one of the best being named *mariesii major*. Plants are easily raised from seed, but



1. VERONICA (Rock Speedwell)

3. IBERIS SEMPERVIRENS "LITTLE GEM"

2. POTENTILLA FRUTICOSA

4. AN ALPINE VIOLA

considerable variation in shade and purity of colour must be looked for in seedlings. A specially good form may be propagated by taking young growths from the crown when about $2\frac{1}{2}$ inches long, rooting them in a close frame, using compost that is about half of sand. When planted on the rockery care should be taken to provide plenty of depth for the fleshy roots, but the genus is specially suitable for the raised alpine seed.

POLYGALA.—Of dwarf, shrubby character, and neat and compact habit, *Polygala chamæbuxus* and its variety *purpurea* is not only a pretty evergreen with box-like foliage, but is practically an ever-blooming plant. Its blossoms are pea-shaped, borne in between the foliage, thus being well protected during bad weather, and when a plant is well established in sandy soil of a leafy or peaty nature, free from lime, it will be very rare, whether the month be January, June, or December, for one to look in vain for blossoms. In the type, the flowers are yellow blotched with purple, but in the form *purpurea* the purple predominates, the tips alone being yellow. By earthing up a plant with sandy peat, roots will be formed up the stems, enabling a clump to be divided and successfully transplanted.

PRIMULA.—The primroses of Europe would provide ample material to fill the whole of this book, and when, in addition, we begin to think about the delightful species that have been introduced from China and Japan, and of the glorious hybrids that have been produced by crossing some of these with European species, we despair of condensing into the limited space that can be spared for any

one genus a title of the comment and information the merits of the hardy Primulas would warrant.

Fortunately some members of the primrose family are so well known that detailed description of them is unnecessary, and furthermore although it is a family of infinite variety, containing species of remarkable distinctiveness, there is nevertheless an unmistakable facial likeness between wellnigh all its members. From the minute *Primula scotica*, and the almost as small *P. farinosa*, and the even smaller *P. minima*, to the great whorled spikes of *Primula japonica*, *P. pulverulenta* and their hybrids, we find the same form of individual flower, widely



PRIMULA FORRESTII.

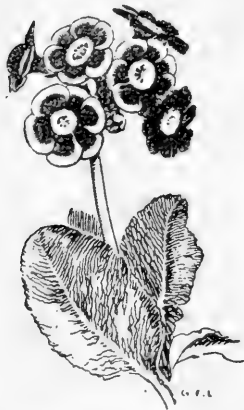
as they may vary in size and arrangement on their stalks. In the common primrose we see the blossoms standing singly on slender stalks, in *P. denticulata* the flowers are closely bunched in heads as spherical as drumsticks, in *P. elatior*, *P. cortusioides*, *P. Sieboldii* and many others we find the flowers set in loose umbels, and, some, such as *P. sikkimensis*, the blossoms are pendent, nodding, but still the shape of the flower itself clearly marks its identity. About the most strikingly distinct species is *Primula littoniana*, the flowers of which are small and set closely on erect spikes after the manner of *Orchis foliosa*. Its colour also is very distinct, mauve with some shading of russet on the unopened buds. But in colours the Primulas

cover an extraordinary range, embracing pure whites and yellows, many mauves, blues, purples, and some rich reds, crimsons, and orange shades, as well as various shades of pink and rose. The purposes to which *Primulas* may be put, and their possibilities for effective display in widely differing situations, place them in a very prominent position among the best families of hardy plants. We have shade and moisture-loving species that will luxuriate in the moist margins of ponds or streams, others that flourish in the moraine, whilst species of higher altitudes will grow and thrive on the high and dry portions of the rock garden. The japonica tribe will grow even in open beds so long as the soil is fairly retentive, but they make the most glorious display when planted close to water. *P. marginata* and its varieties love the sunshine, and can withstand considerable drought, and *P. frondosa*, the pretty little hybrid *Kernerii*, and the auricula type also like fairly dry and sunny positions.

For pot growth, either in frames or in the Alpine house, the *Primula* family provides us with a whole host of extremely beautiful subjects, and with only a covering of glass some kinds will bloom even in the wintry months of February and early March, whilst a fairly representative collection will keep us well provided with bloom from that time onward until summer is well advanced.

Propagation of primulas may be effected in various ways, according to type or section to which they belong. Many make clumps of fibrous roots with many individual crowns which can be separated with ample roots attached to each crown. Others produce rosettes of foliage from

stout fleshy stems, after the manner of the auricula. These rosettes with stem attached may be cut from the main plant as "offsets," and if firmly embedded in pans of sandy compost, the offsets will root. The chief



AURICULA ALPINA. (A
POPULAR MEMBER OF THE
PRIMULA FAMILY.)

points to observe with offsets are perfectly drained rooting medium, cautious watering, and an even but not too high temperature.

Many Primulas reproduce themselves fairly truly from seed, whilst in some cases all sorts of pleasing colour variations are obtainable from seedlings. Success is always greatest when seed can be sown immediately it is ripe, but in the event of seed being purchased which is of the previous season's growth a considerable amount of patience needs to be exercised, for very frequently the outer shell of Primula seed becomes so hardened that germination is delayed for months or even a year. It is disastrous to try to hasten matters by subjecting the seeds to artificial heat, and it is also unwise to allow the soil to be alternately very dry and very wet.

A little powdered charcoal dusted over the surface of the soil will maintain sweetness, and check development of moss which, if left to grow, would smother the minute young seedlings.

Always endeavour to prick out seedling Primulas while very small; although this is a somewhat tedious task,

the beneficial results in growth of the young plants amply repay the effort.

Established colonies of *Primulas*—the plants should, whenever possible, be planted in groups rather than dotted about singly—will appreciate an annual mulching with a mixture of leaf mould and thoroughly rotten manure which has been passed through a sieve. Pot-grown plants may be nourished with liquid manure, but only during the period of active growth and flowering.

RAMONDIA.—Every one who has the slightest knowledge of alpins learns to speak with special terms of appreciation of the *Ramondias*, and it is not to be wondered at, for they are undoubtedly among the most bewitchingly beautiful subjects we can possibly grow in our rock gardens.

Forming broad flat “plates” of foliage that is thick, tough, and crumpled almost like a savoy cabbage, the plant has a distinguished appearance at any season of the year, and when from the centre of the rosettes the flowers arise, their form and softly beautiful shades and blends of colour hold us in rapt admiration.

Ramondias like shade, like peat, like moisture during their growing season, but they cannot stand stagnation and cannot endure saturation of the foliage during humid spells of weather whilst growth is at a standstill. At Kew and in a good many well-built rock gardens, the *Ramondias* have been planted sideways on the perpendicular face of a rough rock formation. This is undoubtedly a very good plan, but only if the building and planting is so carried out that the plants will find moisture behind the stones. *R. pyrenaica* with its pinky lilac blossoms, and

the white flowered variety, and *Nathaliæ* with deep mauve petals and bright orange anthers, are either of them very choice, and they make superb subjects for the alpine house. Seed provides the best means of propagation.

RANUNCULUS.—Who loves a primrose loves a buttercup too, might well be taken as an axiom, and furthermore it may certainly be said that whoever loves flowers must delight in the charms of the many lovely buttercups that make springtime gay with their glittering gold and glistening white. So far as cultural demands are concerned, practically the whole genus *Ranunculus* flourish with perfect ease so long as they have a fairly cool, partially shaded situation, and can be supplied with copious supplies of water during dry periods. In fact, the *Ranunculus* does well under just such conditions as best suit the majority of hardy primulas, and all the dwarfed kinds are admirably fitted for planting in the shady nooks of the rock garden or on the alpine bed. Several of the species also make excellent subjects for pans or pots, for flowering in the alpine house or in frames; here again, unstinted supplies of water, but free drainage being their chief requirements. *R. glacialis* may well be given first place, it being one of the sweetest little flowers we can plant in a cool recess of the rockery, where its spreading stems, fleshy, but prettily cut foliage, and dainty little blossoms, white with a blush of rosy pink, will make a brave and delightful show right through the middle of the summer. *R. amplexicaulis* must certainly be named as one of the best of the family. Its petals are of satiny lustrous white against which the rich golden anthers show up most beautifully, whilst the

foliage is glaucous and elegant. It blooms amid the showers of early April and continues in bloom until the height of summer. *R. montanus*, although but a few inches high, produces quite large flowers of richest yellow, and there is a variety of this species named *geranifolius* that has foliage finely lacerated and of almost fern-like elegance. *R. alpestris* is a delightful little gem with pure white flowers, but its variety *Traunfellneri* is smaller still, sometimes flowering at less than an inch from the soil. I must not, however, attempt to name and describe all the buttercups that are worthy a place among our alpiners, but with these few to start with the readers may always find descriptions of others in catalogues which will guide him in the selection of additional varieties.

SANGUINARIA CANADENSIS.—This is a plant of uncommon appearance and quaint character, but is extremely beautiful, and it surprises me that one does not frequently see a good clump of it in rock gardens. Its roots are tuberous, fleshy, and brittle. The flowers, which appear in early spring, in advance of the leaves, are like glistening white anemones of considerable size. When the leaves appear they are beautifully glaucous, and are prettily cut at the edges, somewhat after the style of the foliage of *Bocconia cordata*. The plant is eminently suitable for pan culture for the alpine house. Propagation may be best effected by division of the tuberous roots immediately after flowering. A form named *major* is of much larger proportions than the type, and an exceedingly beautiful plant.

SAPONARIA.—The "Soapworts" include several varieties that are suitable for rock gardening, *S. ocymoides* being

a particularly desirable plant which will cover a wide-spreading area, and tumble over borders of rock, draping them with slender, wiry stems clothed with bronzed foliage which even in winter is effective, whilst from early May to midsummer the whole mass is converted into a sheet of lovely rosy pink flowers, starlike in form, and backed by inflated calyces of bronzy green. The plant is easily raised from seed, and once planted will spread itself over a large area, and maintain health and vigour for an indefinite period if occasionally mulched with gritty compost.

S. cæspitosa is also rosy pink, of close growing, tufted habit, delighting in a sunny position, and capable of enduring a good deal of drought.

A hybrid between the two species already named is *S. Boissieri*, the flowers of which are of the same rosy shade but are of comparatively large size, often approximating an inch in diameter. Cuttings of young growth will root readily enough in spring. There are yellow *Saponarias* which afford interesting variety, both *lutea* and *bellidifolia* being suitable for rock work. *S. pulvinaris* is another distinct plant of diminutive growth, but bearing a profusion of brilliant red blossoms.

‡ *SAXIFRAGA*.—Whenever alpine plants are written or lectured upon, or even discussed by a couple of enthusiasts, we may be sure *Saxifragas* will come in for some share of attention, and quite naturally so, for there surely is no family that has a greater number of good claims to unstinted affection and widespread cultivation. In point of varied form, character and cultural demands the *Saxifragas* leave the majority of plant genera far behind. In

the multitude of natural species, garden forms or varieties, and hybrids of accidental birth or of scientific breeding, the genus is one of the wealthiest families of plants with which we have to deal, and it matters not how small or how large, how hot and dry, or how cool and shaded a rockery may be, there are Saxifragas well qualified to occupy places of importance and prominence among the choicest of its treasures. For pot culture, or for pans in the alpine house or frame, Saxifragas of many kinds



A TYPICAL " ENCRUSTED " SAXIFRAGE (SECTION EUAIZOONIA).

are among the most desirable subjects, whilst many are as happy and effective in an ordinary bed of soil as upon an elaborate rockery. The remarkable diversity of form among Saxifragas is evidenced by the fact that the family is divided into no less than sixteen distinct groups, and a study of these groups is both interesting and of practical value, for it is noteworthy that throughout the whole range the members of any particular group are akin in their habit of growth and cultural requirements. More often we find in catalogues the genus is divided into two or three

groups, as Encrusted, Mossy, Megasea, and sometimes we have subdivisions of these groups, but the arrangement is unsatisfactory, because unscientific. There are many Saxifragas that do not properly belong to either the encrusted or the mossy sections, and in uncertainty these have frequently been erratically classified, and indeed the one fault to be found with Saxifragas is that their nomenclature has long been somewhat confused, and even alpine specialists are not invariably accurate in regard to names. It would be an immense advantage if the botanical classification into the sixteen sections were adopted for general use, and if all trade catalogues so grouped them or indicated by some distinctive sign to which section a variety belongs; it would within a short time prove of immense assistance in bringing order out of what may almost be termed the present chaotic condition, and would greatly facilitate the dissemination of cultural instructions. The following are the names of the sections, with a brief description of their distinctive characteristics and examples of their species or kinds.

Bergenia.—Often called Megaseas. Plants of large vigorous growth with strong rounded leaves in tufted formation, with clustered heads of bloom generally rosy pink, red, or purple. Examples: *S. cordifolia* and its varieties. Of easy growth in ordinary soil. Sun or shade.

Boraphylla.—Leaves in rosettes, undivided, flowers white, or spotted with red, thrive best in cool, moist, but well-drained soil in shady positions. Example: *S. hieracifolia*.

Cymbalaria.—Of annual or biennial duration, freely seeding, producing tufts of glossy leaves, and bright yellow flowers. Preferring shade and moisture without stagna-

tion, are particularly suited for wall gardening or for colonizing among stretches of rubble-strewn ground. Example: *S. Sibthorpii*.

Dactyloides.—Forming cushion-like mounds of small finely-divided foliage in close rosettes. Flowers in small loose spikes, colours pink, red, crimson, or white; succeed best in shady positions. Example: *S. cæspitosa*.

Diptera.—Entire leaves supported on rather long stalks. Flowers, with petals of varied sizes, white, generally spotted with red or pink. Prefer peaty soil, and a cosy, sheltered position. Example: *S. fortunei*.

Euaizoonia.—Rosettes of stiff, brittle foliage, edged and encrusted with a white limy excrescence. Flowers in upright panicles, most frequently white, some spotted, and a few rosy or purplish in colour. Delight in well-drained positions among limestone, and in the sun. Examples: *S. aizoon* and its many varieties, *S. cotyledon*, *S. longifolia*, etc.



SAXIFRAGA OF THE KABSCHIA SECTION.

Hirculus.—Rosettes of narrow leaves, flower stalks leafy, blossoms yellow, dotted with red. Thrive under boggy conditions but not in stagnant puddles. Example: *S. hirculus*.

Isoneria.—Foliage palmate, flowers white, in panicles. A small section of shade-lovers. Example: *S. aconitifolia*.

Kabschia.—Cushions of small, spiny, undivided foliage,

generally glaucous. Flowers large, singly or few on a short stem. White or yellow. Well-drained gritty soil suits best in fairly dry positions. Examples: *S. apiculata*, *S. burseriana*, etc.

Miscopetalum.—Foliage round, undivided, stalked. Panicked flower stems bespangled with white or spotted flowers. Prefer light sandy soil, and shady positions. Example: *S. rotundifolia*.

Nephrophyllum.—Of tufted growth, with stalked leaves from base, and erect flower stalks branching into panicles of white- and sometimes yellow-tinted flowers. Require moist fibrous soil, some shade. Example: *S. granulata*.

Peltiphyllum.—Flower spikes strong and carrying round heads of pink, or sometimes white flowers which appear before the leaves. Foliage broad-spreading on top of substantial stalks, umbrella-like in form. Suited for stream-side planting or among spiræas, etc., around pond margins. Example: *S. peltata*.

Porphyrion.—Prostrate in growth, the stems thickly clothed with tiny closely-set foliage. Flowers wide open, practically stalkless, generally rosy or purple. Delight in moisture that filters quickly through stone chippings and gritty soil, but love sun so long as roots are kept moist. Example: *S. oppositifolia*.

Robertsonia.—Rounded foliage, notched or toothed at edges, glossy, tall panicles of small starry flowers, sometimes pink, often spotted on white ground. Generally very easily grown in any well-drained soil, preferring some shade. Example: *S. umbrosa*.

Trachyphyllum.—Tufted rosettes of toothed leaflets,

coated with downy hairs. Flowers white or yellow, and in some cases pink or red, in loose panicles. Useful for shady places. Examples: *S. aizoides*, *S. tricuspidata*, etc.

Tridactylis.—Annuals with fleshy leaves, divided, and resembling sedums in appearance, flowers white. Readily reproduced from seed. Sunny positions. Example: *S. adscendens*.

A few of the foregoing sections have but a very small number of species or varieties, but others embrace a great number of distinct species and useful varieties. The *Euaizoonia*, including the encrusted kinds, is perhaps the most attractive and serviceable for small rockeries in sunny positions, although the *Dactyloides* contains many delightful varieties that will make a beautiful display without unduly spreading.

The *Kabschias* are extremely beautiful, and are particularly suitable for cultivation in pans or pots for the alpine house or frame.

For the encrusted type limestone or lime rubble is essential to intensify the edging of limy substance that so greatly enhances the beauty of the rosettes of foliage even during winter. The mossy kinds will thrive quite well in ordinary soil, but it is advisable from time to time to mulch with gritty sandy compost, working it well down among the stems beneath the cushions of foliage.



SAXIFRAGA DECIPIENS. A GOOD MOSSY VARIETY (DACTYLOIDES SECTION).

SCHIZOCODON SOLDANELLOIDES.—This is a plant that belongs to the mountain heights of Japan. It is one of the rarest and perhaps one of the most uncertain of plants that come within the scope of this book, but its beauty is such that no effort can be accounted too troublesome to achieve success with it. What was formerly the greatest difficulty has now to a great extent disappeared. Twenty years or more ago the trouble was that to obtain plants of *Schizocodon* we had frequently to buy newly-imported plants which during their long journey from Japan had become so dried and weakened that only a bit here and there could rally, and unless these were very carefully nursed the first winter proved too severe a strain for them. By perseverance specialists have at length succeeded in developing and propagating stock that has become well acclimatized, and with home propagated stock which can be transplanted from pots, we have an infinitely better chance of success. The best conditions to provide for *Schizocodon* may be summed up as a sheltered but only partially-shaded spot, a soil made up of good loam, peat, coarse grit, and broken charcoal. If the soil is as porous as a filter plenty of water will be appreciated, but on a close soil where drainage is sluggish trouble will not be long delayed. The foliage of this plant is brightly tinted with some of the metallic shades one finds on some irises, and the prettily fringed blossoms are of deep pink in the centre shading off until almost white at the fringe.

SENECIO.—With the common names of "groundsel" and "ragwort" the genus *Senecio* is reputed to contain a larger number of species and varieties than any other

family of plants. Some of these are troublesome weeds that are the bane of every gardener, but there are a number of neatly-growing dwarf species with silvery downy foliage that are exceedingly beautiful and desirable rock plants, and like most silvery-leaved plants they thrive particularly well in gardens by the seashore. Generally speaking the *Senecios* are very easy to grow, the one point concerning the best of the miniature kinds with thick white tomentum being that they resent the damp polluted atmosphere of winter in town gardens, where smoke and fog sheds a sooty grease deposit which clings to their silky hairs. A tilted glass shade such as that shown in our illustration at page 119 will suffice to protect these little gems from disfigurement and injury to their health, and the striking effect of their beautifully-cut glistening white foliage, as well as their golden yellow or orange-coloured blossoms. Most kinds can be propagated from cuttings stripped off with "heels" and inserted in sandy soil, while the smallest may be mulched to the foliage with sandy, gritty compost in autumn, which will encourage the emission of young roots from the stems so that in spring the plant may be carefully lifted, divided and re-planted. A few of the best *Senecios* for Alpine beds or rockeries are *S. carniolicus*, *S. incanus*, *S. tyrolensis*, a green-leaved species with flaming orange flowers, and *S. uniflorus*, one of the dwarfest and best of the silvery-leaved plants, but with unattractive blossoms that are best removed, the foliage benefiting thereby.

SHORTIA.—Where *Schizocodon soldanelloides* will thrive

there may we also succeed with the *Shortias*, and they are most admirable companions for each other.

The foliage of *Shortia galacifolia* is beautiful enough without its blossoms to ensure it a safe place in the affections of alpine plantsmen. To describe its colours, its netting and mottling, and the glistening metallic sheen that overlays the whole, might well be a task for poets of flowery eloquence, whilst the chastity and wax-like refinement of the blossoms is but the crowning glory of a bewilderingly beautiful plant. *S. uniflora* is another irresistibly charming variety with pink flowers of a pearly scintillating shade. Both are superb for pot culture or, better still, for broad-surfaced pans in which three or four plants may be grown together.

It is unwise to frequently disturb *Shortias* for the sake of increasing the number of plants, but it is better to carefully top-dress from time to time with a mixture of sifted peat, silver sand and charcoal to encourage the strengthening of the central crowns and the development of young offsets.

SISYRINCHIUM.—Akin in character of growth to slender-growing irises, the plants of this genus are possessed of a quiet type of beauty, and are admirable for receding positions where surrounding stones or shrubs will protect the fragile blossoms from boisterous winds. The purple *S. grandiflorum* and its white form are the best, but *S. angustifolium* and *S. bermudianum* are others that may well be grown.

SILENE.—Here again we have a large genus that contains among something like half a hundred species many

pretty free-flowering plants, and a few that deserve honoured positions among the choicest collections of alpinists. Of *Silene acaulis*, popularly called "moss campion" or "cushion pink," there are a good half dozen varieties, the type making dense little hillocks of sharp-pointed green foliage, which during summer are mantled with bright rosy pink blossoms on the shortest of stalks. There is a larger flowered variety named *grandiflora*, a white, a double flowered, and one with bright yellow foliage, named *S. acaulis aurea*. *S. schafta* is another sweet little plant, with flowers of a very pleasing and somewhat uncommon shade of pink, and small dainty foliage of a pale shade of apple green. It has the advantage of flowering in autumn, when the greater number of alpine plants have gone to seed. *S. virginica* has flowers of a particularly bright scarlet, and there are several whites, *S. quadrifida*, and *S. maritima*, of which there is a large flowered double variety, being useful examples.

Silenes may be used with good effect on wall gardens, and anywhere on the rockery where gritty soil and good drainage can be afforded.

SMILACINA.—A small genus of erect-growing plants with attractive foliage and blossoms somewhat like a small edition of "Solomon's seal," the *Smilacinas* are particularly useful for planting in rockeries situated in damp, shady places, such as the corners of a walled garden or under trees. They demand plenty of moisture at the root, and should be left undisturbed until they become crowded.

SOLDANELLA.—The violet that shyly hangs its head

“down in the green and shady dell” is not more coy or winsome than the sweet little Soldanellas, that nod their deeply fringed hoop-petticoat blossoms over their tufts of rounded glossy green leaves. Many a plant makes a more ostentatious display of charms, but few are more bewitchingly beautiful. We may have them in violet, purple, lavender, and white, and if planted in a bed of good leaf soil with some silver sand and charcoal, choosing a shady spot, they will all delight us with a goodly quantity of flowers from early April till the latter end of May. Not that the plant is tender, but rather in order that it may be ensured a period of rest, it is advisable to place a sheet of glass over it to ward off the rains of winter, otherwise during spells of mild wet weather young foliage will start from the crowns, and this is calculated to be detrimental to the following spring’s blooming.

Soldanellas are very fine subjects for pans in the alpine house or frame.

SPIRÆA.—For large rock gardens with cool, moist depressions or recesses, many of the comparatively tall, erect-growing Spiræas are very useful and ornamental subjects, but there are a number of dwarf, rambling, or flat-growing species that are exquisite for small rockeries in damp places. Spiræas can never be entirely successful except where their roots are abundantly supplied with water. Most like peaty soil, but some are not at all particular as to the character of the soil, so long as moisture is not lacking, and whilst their roots are within reach of water they will endure hot sunshine, and even revel in

it. A few of these small kinds are *S. decumbens*, *S. hacquetia*, *S. digitata nana*, and *S. pectinata*. Three of these have white flowers, but *S. digitata nana* is a pretty pink. Unfortunately, this is scarce and difficult to obtain true, too often the ordinary species, which grows a couple of feet high, being supplied, whereas *nana* is only about a quarter that height. The plants will divide after about three years' growth, the best time being just as new growth becomes visible.

STATICE.—The ordinary sea lavenders, such as *S. latifolia*, *S. gmelini*, etc., are more suitable for border planting than for the alpine collection, but there are a few real miniatures, that are delightful little subjects for small pockets in the rockery. *S. bellidifolia*, and *S. minuta* are two such. They will thrive in ordinary soil, and are at home in gardens near the sea, although they make themselves just as happy inland.

TANACETUM.—Here we have once again yellow-flowered plants, with highly ornamental silvery foliage. Thriving best in hot sunny positions, either *T. herderi* or *T. argenteum* make spreading clumps of elegantly cut foliage with flower heads at less than a foot high, the flowering period extending through the greater part of summer.

THYMUS.—For fragrance alone the Thymes are indispensable, but among the dwarf and the creeping kinds we have plants that possess much beauty in both flower and foliage. The several varieties of *T. serphyllum* give us red, pink, or white flowers, and some have variegated foliage, whilst *T. serphyllum lanuginosum* has its leaves and stems thickly coated with woolly hairs which give

the whole plant a hoary grey appearance. There are also a number of erect, compact growing species that simulate miniature Conifers, *T. azoricus*, *T. comosus* and *T. ericæfolius* being a few such. Gritty soil, rocky niches, the chinks of a loosely built wall, or a position on the ordinary alpine bed, with a few flat stones pressed around the roots, will any of them suffice to ensure the comfort of the Thymes, and stock may be easily increased by layering, division, or by striking cuttings in a cold frame.

TIARELLA.—“Foam flower” is the popular name given to *Tiarella cordifolia* and its varieties, and the appropriateness of this name strikes one when a good colony is seen with a gentle breeze upon its fragile, feathery, milk-white blossoms, waving on slender but wiry stems. The growth of *Tiarella cordifolia* is dwarf, tufted, spreading by means of runners, which take root and extend the plant in all directions. The foliage is very effective in winter as well as summer, a bronzy tint, suffusing with a pale green, and a glistening sheen overspreading the whole.

TUNICA SAXIFRAGA.—Useful as an autumn blooming plant of lively colour, the *Tunica* makes slender trailing growths, covered with small foliage, and produces airy panicles of rosy tinted flowers. It is not a difficult plant to grow, and its lightness and elegance give it a very attractive and pleasing appearance. Where clumps of spring flowering bulbs occupy pockets on the rockery, a plant or two of *Tunica* may very well be planted, to cover what would otherwise be a bare patch during the summer and autumn.

WAHLENBERGIA.—The genus *Wahlenbergia* contains a number of dainty little plants that are very closely allied to the *Campanulas*. They are not at all difficult to grow, but never look better than when wedged between closely packed stones, with a good body of soil behind them, into which their rambling roots may penetrate for moisture. *W. serphyllifolium* is the best species, of which there are a few varieties possessed of distinctive merits, such as enlarged flowers or richer colouring. The type itself has very attractive violet blue flowers, borne on slender wiry stems. The foliage is narrow, hence the name *serphyllifolia*—foliage like *Thymus serpyllum*. *W. gentianoides*, here figured, is a daintily beautiful plant of slender growth but wonderfully free flowering propensities.



WAHLENBERGIA GENTIANOIDES.

ZAUSCHNERIA.—A well-developed bush of *Zauschneria californica* is one of the most striking plants one can have upon a rockery. Its colour is a most intense coral scarlet, the blossoms being long, tubular, and poised horizontally on stiff woody stems, in loose elegant spikes. The foliage is soft, downy, and of a greyish green. An established plant may grow to a height of 18 inches, and spread to 2 or 3 feet in diameter. An added merit is that the *Zauschneria* flower through the autumn, when brilliant colour on the rockery is particularly valuable.

It is a plant that requires a fairly sheltered position, being of sub-shrubby habit, but I have known plants in exposed situations to be preserved by heaping ashes around the base, the plants breaking away freely when the ashes are removed in spring, even though their top branches have perished during winter. Perfect drainage is essential, and an established plant should not be disturbed at the root. A good method of propagation is to peel off shoots from the branches early in autumn, insert round the edge of a pot of sandy compost, and place in a sheltered frame until spring, when they may be shaken out and potted to grow for a season before planting in permanent quarters.

CHAPTER X

SELECTIONS OF PLANTS FOR VARIOUS PURPOSES

HOWEVER carefully one may describe plants in such chapters as the two immediately preceding this, there are frequent occasions when one desires some readily accessible reminder of plants that are particularly useful for certain situations, or for certain seasons of the year. With the object of making this book as useful as possible, I have compiled a few lists of plants that are suitable for particular purposes, and have also resorted to lists of a few kinds of plants that could not have been fully dealt with except by adding unduly to the extent and cost of the volume.

Ferns are well suited for rock gardening, but to treat of ferns as I should wish to do, would necessitate the addition of several more chapters to the book, and that could not at present be permitted. Ferns are, in fact, fully entitled to and worthy of a separate volume, but in the meantime I can do no more than name a few of the most readily obtainable and easily grown species and varieties that are, at the same time, of sufficient beauty

and interest to justify inclusion in even a small collection of rock plants.

In regard to bulbs, also, there are sufficient kinds of a suitable character for either the rockery or the Alpine house to occupy still further chapters, but the most that can at present be done is to furnish a list of the names of some of the best and easiest, although it may be remarked that quite a number of tuberous rooted plants that are generally classified with bulbs have received due notice in the previous sections of this work.

Evergreen shrubs, pigmy trees and flowering shrubs have found but little space in this book, but for no other reason than that the whole sphere of alpine gardening is so vast that it cannot be compressed into a volume of reasonable dimensions. Some amends have been made by naming in this chapter a few of the kinds that may be used with advantage in gardens of moderate size.

Whilst I feel, as my task nears its close, some gratification that I have contrived to include so large a number of excellent plants, and have dealt with most phases of alpine plant culture, I am fully alive to the fact that a vast deal is still omitted, for the subject is indeed inexhaustible. The reader will however find that even small beginnings will for a while fully occupy him, and in course of time the acquisition of knowledge and experience will enable him to deal successfully with fresh acquaintances among this fascinating class of plants, and the further the hobby of alpine gardening is pursued the more enjoyable it becomes.

A FEW OF THE EARLIEST AND MOST EFFECTIVE OF SPRING FLOWERING ROCK PLANTS.

[Where the generic name alone is given it may be assumed that a number of the species and varieties bear the characteristics indicated.]

ADONIS
ANEMONE
ARABIS
ASPERULA
AUBRIETIA
AURICULA
CARDAMINE
CHEIRANTHUS ALPINUS
CONVALLARIA MAJALIS
CORYDALIS
DRABA
DRYAS OCTOPETALA
EPIMEDIUM
ERICA MEDITERRANEA HIBERNICA
GENISTA TINCTORIA
GENTIANA ACAULIS

HACQUETIA EIPACTIS
IBERIS SEMPERVIRENS
IRIS RETICULATA AND OTHERS
MACROTOMIA ECHIOIDES
MORISIA HYPOGEEA
POLYGALA
PRIMULA, MANY KINDS
PULMONARIA ANGUSTIFOLIA
" ARVERNENSE
RANUNCULUS
SANGUINARIA CANADENSIS
SAXIFRAGA APICULATA
" CORDIFOLIA
TRILLIUM NIVALE
" OVATUM
VIOLA

A SELECTION OF PLANTS THAT BLOOM IN AUTUMN, WHEN BRIGHT COLOUR IN THE ROCK GARDEN IS SPECIALLY WELCOME.

BELLIS ROTUNDIFOLIA CÆRULESCENS
CERATOSTIGMA PLUMBAGINOIDES
COLCHICUM AUTUMNALE
CORIARIA TERMINALIS
CORYDALIS
CYCLAMEN AFRICANUM
" EUROPÆUM
" LATIFOLIUM
" NEAPOLITANUM
DAPHNE CNEORUM
ERICA CILIARIS
" CINERIA ALBA
ERYSIMUM RUPESTRE



COLCHICUM AUTUMNALE.
(The blossoms appear before the foliage.)

GEUM HELDREICHII	OXALIS LOBATA
IBERIS	" ROSEA
MERTENSIA PANICULATA	PRUNELLA
MICROMERIA CROATICA	SCUTELLARIA SPLENDENS
MIMULUS	THYMUS
MYOSOTIS SEMPERFLORENS	ZAUSCHNERIA CALIFORNICA

A FEW PLANTS THAT WILL BLOOM DURING WINTER.

ANEMONE BLANDA	HACQUETIA EPIACTIS
" NEMOROSA	HELLEBORUS NIGER (<i>Christmas</i>
CROCUS IMPERATI	<i>Rose</i>)
CYCLAMEN CILICICUM	IBERIS GIBRALTARICA
" COUM	" SEMPERFLORENS
" IBERICUM	IRIS STYLOSA
" LIBANOTICUM	LITHOSPERMUM PROSTRATUM
ERANTHIS HYEMALIS	PETASITES FRAGRANS
ERICA CARNEA	POLYGALA CHAMÆBUXA
" MEDITERRANEA HIBERNICA	SAXIFRAGA APICULATA
GALANTHUS ELWESII (<i>giant snow-</i>	" BURSERIANA
<i>drop</i>)	SCILLA SIBERICA

A FEW PLANTS THAT ARE POSSESSED OF BEAUTIFUL FOLIAGE, EITHER TINTED, CLOTHED WITH SILVERY TOMENTUM, OR BEAUTIFULLY CUT AND FRINGED.

Generally as effective in winter as in summer.

Those marked with an asterisk have silvery foliage.

ACÆNA	ANTHEMIS MONTANA
ACANTHOLIMON	" STYRIACA
*ACHILLEA OF SEVERAL KINDS	*ANTHYLLIS MONTANA
AJUGA	BRYANTHUS
ALCHEMILLA	*CHRYSANTHEMUM ARGENTEUM
*ALYSSUM OF SORTS	CONVOLVULUS MAURITANICUS
*ANTHEMIS BIEBERSTEINIANA	DRYAS
" CANESCENS	EPIMEDIUM
" MACEDONICA	ERICA

EUPHORBIA CHARACIAS
 ,, CYPARISSIAS
 ,, WULFENII
 GALAX APHYLLA
 *HELICHRYSUM LANATUM
 HERNIARIA
 HYPERICUM
 MERTENSIA ALPINA
 NEPETA GLECHOMA VARIEGATA
 ONONIS ROTUNDIFOLIA
 OXALIS VARIEGATA
 PARONYCHIA
 POLYGONUM
 POTENTILLA
 RODGERNSIA PINNATA
 SAGINA
 SAXIFRAGA (*encrusted*)
 SEDUM
 SEMPERVIVUM
 SHORTIA
 *TANACETUM ARGENTEUM



RODGERNSIA PINNATA.

A grand plant for cool recesses in a fairly large rock garden where a bold outstanding feature is desired.

VERONICA CUPRESSOIDES
 ,, HECTORI
 ,, SALICORNOIDES

A SELECTION OF PLANTS FOR SHADY ROCKERIES.

ANEMONE
 ARENARIA
 CARDAMINE
 CORYDALIS
 COTULA
 CYCLAMEN
 DODECATHEON
 DOUGLASIA
 DRYAS
 EPIGEEA
 FERNS, IN MANY VARIETIES
 GALAX
 GENTIANA ASCLEPIADEA
 ,, FRIGIDA
 ,, FRÆLICHII
 ,, KURROO
 ,, PUMILA
 ,, WALLICHIANA
 HABERLEA RHODOPENSIS

LINARIA HEPATICIFOLIA
 ,, PILOSA
 LINNÆA BOREALIS
 NIEREMBERGIA
 OMPHALODES
 OURISIA COCCINEA
 OXALIS ACETOSELLA
 ,, ENNEAPHYLLA
 POLEMONIUM CONFERTUM
 POLYGALA
 PRATIA
 PRIMULA, MANY KINDS
 PULMONARIA
 RAMONDIA
 RANUNCULUS
 SAXIFRAGA (of sections)
 SHORTIA
 SOLDANELLA
 VERONICAS
 VIOLA, VARIOUS SPECIES

BULBOUS OR TUBEROUS-ROOTED PLANTS THAT MAY
APPROPRIATELY BE ASSOCIATED WITH ALPINES IN THE
ROCK GARDEN OR THE ALPINE HOUSE.

ALLIUM	IRIS RETICULATA
ANEMONE, OF NUMEROUS SPECIES	„ ANGLICA
CHIONODOXA	LEUCOJUM (<i>spring and autumn snowflakes</i>)
COLCHICUM (<i>Autumn Crocus</i>)	MUSCARI (<i>grape hyacinth</i>)
CROCUS, OF SEVERAL SPECIES	ORNITHOGALUM
CYCLAMEN, HARDY SPECIES (see Chapter IX)	SCILLA SIBERICA
DODECATHEON	„ BIFOLIA
ERANTHIS HYEMALIS	STERNBERGIA LUTEA
ERYTHRONIUM OF SEVERAL KINDS	TRILLIUM GRANDIFLORUM
GALANTHUS (<i>Snowdrop</i>)	TULIPA GREIGII

TREES AND SHRUBS OF DWARF HABIT AND SUITABLE
CHARACTER FOR ASSOCIATION WITH ROCK PLANTS OR
FOR THE APPROACHES AND BACKGROUND TO THE
ROCK GARDEN.

Many shrubs, and even coniferous trees, may be kept dwarf and made appropriately attractive in rock gardens, by pegging down their branches.

ABIES PYGMÆA (<i>miniature silver fir</i>)	CISTUS, VARIOUS SPECIES AND VARIETIES (<i>rock rose</i>)
ARTEMESIA ABROTANUM (<i>worm- wood</i>)	CHOISYA TERNATA (<i>evergreen, with white flowers like orange blossom</i>)
AZALEA ROSÆFLORUM (<i>pink flowers</i>)	COTONEASTER THYMIFOLIA (<i>ever- green with scarlet berries</i>)
BERBERIS DARWINI NANA (<i>ever- green, with orange flowers</i>)	COTONEASTER HORIZONTALIS (<i>evergreen with scarlet berries</i>)
BERBERIS EMPETRIFOLIA (<i>ever- green, with yellow flowers</i>)	CRYPTOMERIA ELEGANS NANA (<i>autumn tinted Japanese cedar</i>)
CASSINIA FULVIDA (<i>golden foliage, white flowers</i>)	

CYTISUS KEWENSIS (<i>prostrate, with cream pea shaped blossoms</i>)	ONONIS ROTUNDIFOLIA (<i>pink flowers</i>)
DAPHNE BLAGAYANA (<i>fragrant white blossoms</i>)	RHODODENDRON FERRUGINEUM (<i>bright red</i>)
DAPHNE CNEORUM (<i>fragrant pink blossoms</i>)	RHODODENDRON FERRUGINEUM ALBUM (<i>white</i>)
ERICA, MANY KINDS (see Chapter IX)	VERONICA BIDWELLII (<i>white with violet tints</i>)
GAULTHERIA PROCUMBENS (<i>ornamental evergreen foliage, red berries</i>)	VERONICA CUPRESSOIDES (<i>conifer-like in appearance</i>)
JUNIPERUS SABINA PROSTRATA (<i>dwarf juniper</i>)	VERONICA HECTORI (<i>club moss-like in growth, lilac flowers</i>)
ONONIS FRUTICOSA (<i>purple flowers</i>)	VERONICA HULKEANA (<i>lavender flowers</i>)
	VERONICA SALICORNIOIDES (<i>conifer-like, golden tinted foliage</i>)

HARDY FERNS SUITABLE FOR ROCK GARDENS AND THE ALPINE HOUSE.

The following is but a small selection of the immense range of graceful, elegant ferns that might well engage our attention and form a special study. The collection and cultivation of hardy ferns is indeed a delightful and engrossing hobby. Many ferns delight in a moist shady situation with peaty soil, but it is a mistaken idea that all ferns must have peat, shade and continuous moisture, indeed some will thrive better on a dry stone wall, and some seek the sunshine rather than the shade. For the guidance of the beginner, I have divided the list into two sections: shade-loving, and sun-loving.

SHADE-LOVING SPECIES.

- *ALLOSORUS CRISPUS
 *ASPLENIO ADIANTUM-NIGRUM
 * " RUTA-MURARIA
 * " TRICHOMANES
 ATHYRIUM FELIX FÆMINA
 " " CORYMBI-
 FERUM
 " " GRANDICEPS
 " " PLUMOSUM
 *CETERACH OFFICINARUM
 *CYSTOPTERIS FRAGILIS
 *POLYPODIUM CALCAREUM
 * " DRYOPTERIS
 STRUTHIOPTERIS GERMANICA
 *WOODSIA ALPINA
 SCOLOPENDRIUM, MANY KINDS

SUN-LOVING FERNS.

- *BLECHNUM SPICANT
 LASTREA DILATATA
 LASTREA FILIX-MAS
 " GOLDIANA
 " PSEUDO-MAS CRIS-
 TATA
 " SEVERAL OTHER DIS-
 TINCT TYPES AND
 MANY VARIETIES
 OSMUNDA PALUSTRIS
 " REGALIS
 ONOCLEA SENSIBILIS
 POLYPODIUM VULGARE AND ITS
 VARIETIES
 POLYSTICHUM ANGULARE AND
 VARIETIES
 POLYSTICHUM LONCHITIS

*Those marked * should be given well drained and fairly dry positions.*

A FEW HARDY ORCHIDS, SUITABLE FOR ROCK-GARDENING
 AND INTERESTING IN CHARACTER.

- BLETIA HYACINTHINA
 CYPRIPIEDIO ACALE
 " CALCEOLUS
 " PARVIFLORUM
 " PUBESCENS
 " SPECTABILE
 GOODYERA PUBESCENS
 HABENARIA BIFOLIA

- HABENARIA CILIARIS
 " FIMBRIATA
 ORCHIS FOLIOSA
 " LATIFOLIA
 " MASCULATA
 " PURPUREA
 " PYRAMIDALIS
 " SPECTABILIS

INDEX

A

- Abies*, *pygmæa*, 196
Acæna, 35, 47, 64, 68, 70-72, 74, 194
Acantholimon glumaceum, 114, 194
Achillea, 68, 114-115, 194
Actinella, 115
Adonis, 68, 115-116, 193
Æthionema, 68, 116-117
Åjuga, 72, 194
Alchemilla, 72-73, 194
Allium, 196
Allosorus crispus, 198
 Alpine and kindred plants, 69
 — — — general characteristics of, 19
 Alpine Bed, The, 17, 39
 — Frame, An, 62
 — House, 63
 — — Ferns for, 197
 — — Plants for, 68
 — plants, autumn blooming, 193
 — — earliest blooming, 193
 — — easily grown, 69
 — — in pots and pans, 61
 — — in small gardens, 63
 — — on walls, 33
 Alpine Plants, propagation of, 49
 — — — by cuttings, 51
 — — — division, 49
 — — — layers, 54
 — — — seed, 56
 — — winter blooming, 194
 — — with ornamental foliage, 194
 Alpines, when and how to plant, 42
Alyssum, 73-74, 77, 194
Androsace, 35, 47, 68, 117-121
 — *lanuginosa*, 22
Anemone, 41, 68, 121-126, 193-196
Antennaria, 74
Anthemis, 74, 194
*Anthericum*s, 43, 71, 74
Anthyllis montana, 194
Antirrhinum, 126-127
 — *asarina*, 35
 — *glutinosum*, 35
 — *majus*, 35
Aquilegia, 74-75
Arabis, 76-77, 193
Arenaria, 35, 68, 77, 195
 — *balearica*, 21, 41, 74
 — *montana*, 64
Armeria, 49, 78-79

Artemesia, 196
Asperula, 35, 79, 193
 — *odorata*, 44
Asplenium, 36, 198
Aster alpinus, 80
Athyrium, 198
Aubrietia, 43, 46, 49, 51, 56,
 80-81, 193
Auricula, 193
 Autumn-flowering plants, 193
Azalea rosæflorum, 196

B

Bellis rotundifolia cærulescens,
 193
Berberis, 196
Blechnum spicant, 198
 Bottle flower, 168
Bryanthus erectus, 68, 127, 194
 Building a Rock Garden, 27
Bulbinella hookeri, 74
 Bulbs and tuberous rooted
 plants, 196
 — in the Rock Garden, 32

C

Callirhoe involucrata, 127
Campanula, 43, 49, 51, 68, 74,
 114, 127
 — some distinct kinds of, 130
Cardamine, 127, 193, 195
Carlina acaulis, 68

Carpeting plants: *Acæna*, 71;
Ajuga, 72; *Arenaria bale-*
arica, 21, 77; *Herniaria*
glabra, 90; *Mentha requi-*
eni, 159; *Veronica canes-*
cens, 110; *Veronica repens*,
 110
Cassinia fulvida, 196
Centranthus ruber, 37
Cerastium, 81
Ceratostigma plumbaginioides,
 131, 193
Ceterach officinarum, 198
Chænostoma hispida, 68
 Cheddar Pink, 137
Cheiranthus, 35, 51, 82-84, 193
Chionodoxa, 196
Choisya ternata, 196
Chrysanthemum, 83, 194
Cistus, 32, 37, 44, 51, 196
 Cobweb Houseleek, 106
Codonopsis ovata, 35, 132
Colchicums, 36, 77, 193, 196
Coniferæ, 31
Convalaria majalis, 193
Convolvulus, 68, 132, 194
Corydalis, 68, 83, 131-132, 193,
 195
Cotoneaster horizontalis, 196
 — *thymifolia*, 196
Cotula squalida, 35, 84, 195
 Cranes' Bill, 86, 144
Crocus, 77, 196
 — *Imperati*, 194
Cryptomeria elegans nana, 196
Cushion pink, 185
 Cuttings, propagation by, 51
 — of Alpines, how to make, 52
 — — Propagating frame for, 52
 — — useful substitute for frame,
 54

- Cyclamen, 36, 46, 68, 133-134,
138, 193-196
Cypripedium, 68, 134-135
Cystopteris fragilis, 198
Cytisus Kweensis, 197
- D**
- Daffodil anemone, 125
Daisies, 83
Daphne, 68, 135
— Blagiana, 197
— Cneorum, 193, 197
Dianthus, 34, 37, 46, 54, 55, 68,
135
— Propagation of, 136
— Species and varieties of, 137
Dionæa muscipulata, 68
Dodecatheon, 36, 68, 71, 77,
137-138, 195-196
Douglasia, 195
Draba, 68, 138-139, 193
Dracocephalum, 139
Drought, 36
Dryas, 37, 139-140
— octopetala, 193
- E**
- Edelweiss, *see* Leontopodium
Alpinum
Epigæa repens, 140, 195
Epimedium, 68, 140, 193-194
Eranthis, 194, 196
Erica, 55, 142, 197
— carnea, 194
— ciliaris, 193
- Erica, cineria alba, 193
— Mediterranean hibernica, 193,
194
— species and varieties of, 143
Erinus Alpinus, 35, 141-142
Erodium, 144-145
Erysimum, 83-84
— rupestre, 193
Erythronium, 36, 145, 196
Euphorbia, 84-85, 195
— myrsinites, 68
Evening Primrose, 97
- F**
- Ferns, 32, 35, 191-192, 197-198
Foam flower, 188
Foliage, Ornamental, 194
Fragarias, 35
Funkia, 68
- G**
- Galanthus Elwesii, 194, 196
Galax, 195
Galium, 145-146
Gaultheria procumbens, 197
Gazania, 68, 146
Genista tinctoria, 193
Gentiana, 49, 68, 85, 147
— acaulis, 193
— species and varieties of, for
shady rockeries, 195
Geranium, 32, 86-87
Gerbera Jamesoni, 68
Germination, 57
Geum, 87-88

Geum Heldreichii, 194
 Glaux maritima, 35
 Globularia, 35, 88
 Gnaphalium Leontopodium, *see*
 Leontopodium Alpinum
 Golden Drop, 162
 Groundsel, 182
 Gypsophila, 89

H

Haberlea rhodopensis, 22, 68,
 148-149, 195
 Hacquetia epipactis, 149, 193-194
 Helianthemum, 32, 37, 44, 51,
 89-90
 Helichrysum lanatum, 195
 Helleborus, 68, 194
 Hepatica, *see* Anemone
 Herniaria, 90-91, 195
 Heron's Bill, 144
 Heucheras, 43
 Hippocrepis comosa, 91
 Homogyne, 91
 House leek, 106
 Humus, 41
 Hyacinth, 32
 Hypericum, 32, 91-92, 195

I

Iberis, 92-93, 193-194
 Iceland poppy, 100
 Incarvillea grandiflora, 68, 149-
 151
 Ionopsidium acaule, 35
 Iris, 68, 90, 151-153, 193, 196
 — Stylosa, 194

J

Jacob's Ladder, 101
 Juniperus sabina prostrata, 197

L

Lastrea, 198
 Layering Alpine plants, 54
 — Dianthus, 55
 — Veronica salicornoides, 56
 Leontopodium alpinum, 68, 153-
 154
 Leucojum vernum, 77, 196
 Lewisia rediviva, 21, 68, 154
 Limbux, 66
 Lime, 66
 Linaria, 35, 155-156, 195
 Linnæa borealis, 155, 195
 Linum, 156
 Lithospermum, 51, 68, 156-157,
 194
 Lobelias, 32
 Lotus corniculatus, 44
 Lychnis, 68, 158
 Lysimachia nummularia, 35

M

Macrotomia echioides, 158-159,
 193
 Marjoram, 99
 Meconopsis, 47, 68, 159
 Megasea, 178
 Mentha Requièni, 159-160
 Mertensia, 93-94, 195
 — Paniculata, 194
 Mesembryanthemum, 68, 160
 Michaelmas daisy, 80
 Micròmeria croatica, 194

Mimulus, 51, 94-95, 194
 — Chalk Hill Giant, 68
 Morisia hypogæa, 68, 160, 193
 Moss campion, 185
 Moss heath, 127
 Muehlenbeckia, 51
 Mule Pink, 137
 Muscari, 196
 Myosotis, 194

N

Nepeta, 55, 64, 68, 96, 195
 Nierembergia, 195
 Noccæa, 96

O

Oenothera, 97-98
 Omphalodes luciliæ, 68, 98, 160-162, 195
 — nitida, 98, 162
 Onoclea sensibilis, 198
 Ononis, 99, 195, 197
 Onosma, 51, 162
 Orchis foliosa, 36, 72, 90
 Origanum, 68, 99
 Ornithogalum, 196
 Osmunda palustris, 36, 198
 — regalis, 36, 198
 Ourisia coccinea, 68, 163, 195
 Oxalis, 68, 100, 194-195

P

Pansies, 112
 Papaver, 100-101
 Paradisea liliastrum, 74
 Parochetus communis, 163
 Paronychia, 195

Pasque flower, 125
 Peat, 44
 Pentstemon, 43, 163-165
 Petasites, 194
 Phlox, 46, 51, 56, 68, 165-167
 Phuopsis stylosa, 167-168
 Phyteuma, 168
 Pink tribe, the, 135
 Planting, 42
 Plants for the Alpine house and frame, 68
 — for wall gardens, 35, 37
 Platycodon, 168-169
 Plumbago Larpentæ. *See* Ceratostigma plumbaginioides
 Polemonium, 101, 195
 Polygala, 169, 193, 195
 — chamæbuxus, 194
 Polygonum, 55, 102-103, 195
 Polyonium, 101-102
 Polypodium, 36, 198
 Polystichum, 198
 Poppies, 47, 100-101
 Poppy anemone, 125
 Potentilla, 32, 103-104, 195
 Potting, 65, 68
 Pratia, 195
 Prickly Thrift, 114
 Primrose, 169-173
 Primulas, 41, 44, 47, 68, 114, 169-173, 193, 195
 Propagating frame, 53
 Prunella, 104, 194
 Pulmonaria, 104-105, 193, 195

R

Ragwort, 182
 Ramondia, 21-22, 41, 68, 148, 173-174, 195

- Ranunculus*, 174-175, 193, 195
 Red valerian, 35
 Rhizomatous roots, 46, 103
Rhododendron ferrugineum, 197
 Rock Garden, The, 14
 — — Bulbs in, 32
 — — Construction of, 27
 — — Site and situation for, 15
 — — Trees and shrubs for, 196
 Rockeries, Plants for shady, 195
Rodgersia pinnata, 195
Roscoea, 68
- S**
- Sagina*, 195
 St. Brigid's anemone, 125
Sanguinaria canadensis, 36, 175, 193
Saponaria ocymoides, 35, 44, 64, 176
Saxifraga, 21, 35, 41, 43, 46, 47, 56, 68, 114, 176, 193-195
 — Sectional grouping of, 178
 Scarlet wind flower, 125
Schizocodon soldanelloides, 68, 182-183
Scilla, 194, 196
Scolopendrium, 36, 198
Scutellaria, 194
 Sea Pink, 78
Sedum, 35, 43, 47, 68, 105-106, 116, 195
 Seed sowing, 57
 — — in the Alpine bed, 47
Sempervivum, 21, 35, 46, 47, 68, 106-108, 195
Senecio, 182-183
Shortia, 68, 183-184, 195
 — *galacifolia*, 68
- Silene*, 35, 184-185
Sisyrinchium, 77, 184
Smilacina, 185
Snowdrop (Galanthus), 194, 196
Snowdrop anemone, 126
Snowflake Linaria, 155
 Soil for Alpine plants, 39
 — for Rock Garden, 41
Soldanella, 44, 68, 185-186, 195
Solomon's Seal, 185
 Sowing small seeds, 58
Spiraea, 186-187
 Spring-flowering plants, 193
Statice, 68, 187
Sternbergia lutea, 196
 Stone, for Rock Gardens, 28, 44-45
 — how to deal with, 30
Struthiopteris, 198
 Sun Rose, 89
- T**
- Tanacetum*, 187, 195
Thalictrum, 68
 Thrift family, 78
 Thyme, 35
Thymus, 55, 187-188, 194
Tiarella, 188
 Tongueing, 54
Trillium, 71, 193
 — *grandiflorum*, 196
Tropaeolum polyphyllum, 35, 68
 — *speciosum*, 35
Tulip, 32
Tulipa Greigii, 196
Tunica saxifraga, 188
- U**
- Uvularia*, 91

V

- Verbascum phoenecium, 35, 37
Verbena, 68
Veronica, 21, 32, 46-47, 55, 68,
74, 103, 108-112, 195
— Shrubby, 197
Viola, 51, 68, 112, 193, 195

- Wallflower, 35, 82, 84
Watering, 36, 47, 58
Welsh Poppy, 159
Winter-flowering plants, 194
Wood Sorrel, 100
Woodsia Alpina, 198
Wormwood, 196

W

- Wahlenbergia, 68, 188-189
Wall garden, A, 33
— — Plants for, 35

Z

- Zauschneria California, 43, 51,
68, 189-190, 194

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