

BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

Vol. 6

September-October, 1948

No. 5

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Published by the American Rock Garden Society and entered in the United States Post Office at Plainfield, New Jersey, as third class matter; sent free of charge to members of the American Rock Garden Society.

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Dorothy Ebel Hansell, Editor

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ROCK GARDENING IN THE PROVINCE OF QUEBEC

F. CLEVELAND MORGAN, Montreal, Canada

(continued from the July-August issue of the Bulletin)

THE PUBLIC highway cuts my property in two and, for the sake of privacy, as the road is a busy one, I built a high stone wall. One section is flanked by stone-capped columns and against this I placed a perennial border. My garden is essentially an informal one, but this open corner seemed to call for more formal treatment. I therefore determined to build a sunk garden in front of the perennial border. To balance the road wall and create a separate unit without entirely isolating this garden was the problem of the moment. This was solved by building a line of square stone columns the same height as the wall and joining them at their bases up to only eighteen inches. Across the two ends clipped hedges of Canadian Cedars (*Thuja*) were planted. The whole interior of this enclosed oblong was now dug out and the level lowered by thirty inches. Down the center a canal-like pool was further excavated which, when completed, measured about sixty feet long, ten feet wide and two feet six inches in depth. A lead cistern serves as a central ornament and supplies the water which spills from lips at the other end. The next step was to build the retaining walls of this sunk garden, and I kept them far enough forward to allow a good planting space at the top. This was finished on three sides with flat stones forming a crevice garden and on the fourth was left open as a bed for small annuals and vines with which to clothe the columns. To add interest, I placed seats at each end of the wall on the axis of the pool. The clipped hedges send out projecting arms to enfold them and short flights of broad steps lead down to the grass below. This grass surrounding the pool is fifteen feet wide all around and is graded slightly to the pool level.

Few annuals prove really satisfactory in the rock garden, and so I determined to devote a large portion of the top beds of this wall garden to the growing of small-flowered annuals. The great difficulty is to get them planted out and established in the short time at our disposal before hot weather commences, for our spring comes with such a rush and brings with it multitudinous duties. British gardeners can scarcely realize what it means to have all outdoor work at a standstill for at least four months every winter. Cutting wood, shoveling snow, filling ice houses, repairing tools and machines and such jobs occupy the staff during this period. Then the warm March sun begins to take effect. Gradually the snow piles vanish. One slogs through slush and water, but still nothing can be done. We get the hotbeds ready, for the seed boxes in the greenhouse are showing signs of extremely active life. We poke anxiously at winter coverings, loosening them where the icy coat permits. But we must not be too venturesome, for blizzards are in the offing and until April 20 is safely passed, strict orders are given to leave all exposed parts of the garden under part of their winter coats.

It is true that in some years early comers are already in bloom. Snow-drops, Bulbocodiums, Hellebores, *Iris reticulata* and some Anemones are generally in flower by the end of April. Early pruning and spraying can be done and digging follows as soon as frost is out of the ground. A continuous round of the rock garden must be made, watching for signs of heaving. This is particularly necessary in the loose gravelly soil of the screes and moraines or in those sections which were rebuilt in the Autumn. Plants will not have had time to establish themselves and even the rocks may need resetting and firming. By the end of April, the serious cleaning up of the winter litter commences. Already much has been removed, but now comes the careful handwork of stirring, feeding, topdressing and all those motherly attentions so necessary at this season. Even yet we must look out for trouble. How many springs have we rejoiced, as my gardener and I made our daily round, to find the fresh green mounds of some precious plants. But the hot sun was not much good for such tender things, and so they withered and died under the assault. A little umbrella of Hemlock boughs might have saved them until hardened to this bitter world. Frosts may be encountered as late as the middle of May. A June sun can be too much for transplanted youngsters. Between these Scylla and Charybdis we must steer our way, and it is wise to make plans ahead of time to speed planting.

I do not propose to dwell unduly on long lists of desirable annuals. Even our native plants appear to be better known to Europeans than to ourselves. In justification, I would point out that it must be difficult for a Britisher with his wealth of public gardens, nurserymen and eager specialists to realize the comparative isolation of a venturesome gardener in so huge a country as Canada. He must, to a great extent, test things for himself. Most of the better American annuals are indigenous to the west coast and particularly to California. How lovely are the Gilias for instance, *Gilia dianthoides* and *G. dichotoma*, the Layias, Lupines, Nemophilas, Phacelias and *Platystemon*. Most of them are reasonably easy, though all too short-lived in our dry heat. The Wind Poppy (*Meconopsis heterophylla*) indeed refuses to linger and even *Bartonia* (now classified *Mentzelia*) must be treated with more than ordinary care. If one can persuade *Abronia umbellata* to germinate, there is no more charming plant for a warm sandy soil. There are also a few notable annuals from the eastern states which are of extraordinary charm. I refer to the Sabatias and Gentians. There are several species of the former but, perhaps, *Sabatia stellaris* will serve as a type. It grows from twelve to eighteen inches in height, with branching wiry stems carrying a number of lovely pink blossoms with a yellow eye. As its name implies, the Marsh Pink will stand a good deal of moisture and to get the best effect, it is better to grow it in colonies set fairly close together. The Fringed Gentian is one of those plants one cannot leave alone. It is a beautiful species and quite the most tantalizing I know. Sometimes classed as an annual, it more generally flowers the second year. Those who have succeeded best with it pot up the seedlings and carry them over the winter in a coldframe. They are then planted out in deep moist soil in dappled shade, where they may be expected to flower in autumn.

Mexico has contributed some outstanding annuals for a wall garden. What a grand little plant for a hot spot is *Sanvitalia procumbens*. I love, too, the cool yellow pouches of *Calceolaria mexicana*. My newest find is the Tahoka Daisy (*Machaeranthera*), whose lavender daisies contrast so pleasantly with the greyish ferny foliage. From South America come the brilliant Calandrinias, the Nolas and last, but not least the Nierem-

bergias. Treated as an annual, *N. hippomanica* proved a lovely thing, but thrived best in a cool scree. Another newcomer to me is *Isotoma axillaris* from Australia. It is of neat compact habit, with a long period of bloom and trumpet-shaped flowers of a soft lilac-blue. South Africa is so generous in its contributions that a mere list would be formidable, but in gratitude I particularly mention *Diascia*, for its good temper and general loveliness. The newer Dimorphothecas and Ursinias are, of course, indispensable. Of odd treasures, I mention the Linarias of the Fairy Bouquet strain and the wonderful flowering qualities of the yellow *Linaria multipunctata*. This and a little annual Delphinium, received from Lady Byng under the name of Serbian, are of such outstanding merit as crevice plants that I wonder they are not in every seed catalogue. Can they be listed under some other name? The little Tom Thumb *Calliopsis* also make charming companions to the Delphinium and self-sow freely.

I do not confine myself to annuals on those sides of the sunk garden where crevice paving is used. On these wall tops, such low spreading shrublets as *Alyssum argenteum*, *Daphne cneorum*, *Genista prostrata*, *G. dalmatica*, *Cytisus purpureus* and various Helianthemums are found. Of perennials, many Dianthi and Erodiums, *Iris arenaria*, *Cypsophila fraten-sis* and *G. repens*, *Hippocrepis* and *Mazus* are a selection of the plants grown in these crevices. The horizontal crannies of the wall offer splendid homes for many others. *Dianthus neglectus*, *D. pungens*, the hybrid All-woods, *Campanula erinus*, *C. muralis*, *Androsace sarmentosa* and *A. primuloides*, *Silene pudibunda*, *Saxifraga longifolia*, etc., may be picked at random. Around the base of the wall, a six-inch bed is cut out of the turf where Jonquils bloom in the spring and Violas follow later in the autumn.

I have been sometimes asked; "What are the chances of finding new material for the rock garden in eastern Canada?" It is a well known fact that the alpine tablelands of the Shick-shock Mountains in the Gaspé Peninsula, together with certain areas in Labrador and Newfoundland, were never covered by the ice sheet of the last glacial epoch. The vegetation, therefore, was not entirely destroyed and on the retreat of the ice, many species of the ancient flora were still able to hold their own against later invaders from the south. Today, their nearest surviving relatives are to be found away across the continent in the Rocky Mountains and in Arctic Europe in Nova Zembla and other islands. Those who are interested in this most fascinating subject should consult Professor Fernald's "Persistence of Plants in Unglaciated Areas of Boreal America".

Although the White Mountains of New Hampshire were almost certainly covered by the last ice sheet, it is probable that in isolated valleys certain plants managed to survive, for there are at least three endemic species recorded from these mountains. Though not a spectacular plant, *Geum peckii* has an ancestry sufficiently respectable to warrant its inclusion in this garden. Though not new to botanists, Mr. Arthur Kellett, of Ottawa, has drawn attention in recent numbers of "The New Flora and Silva" to two more Canadian plants, namely, *Convolvulus spithameus* and *Lobelia kalmii*.

I have not confined myself to alpiners, nor even to rock plants. But when is a rock garden not a rock garden? Mine outcrops here, there and everywhere, blossoms into bog gardens, dips into pools and merges into screes and lawns. When is a plant not an alpine or rock plant? In my garden only when it looks uncomfortable and out of place — and there the case rests.

HABITS OF ROCK GARDEN CAMPANULAS

STEPHEN F. HAMBLIN, Lexington, Massachusetts

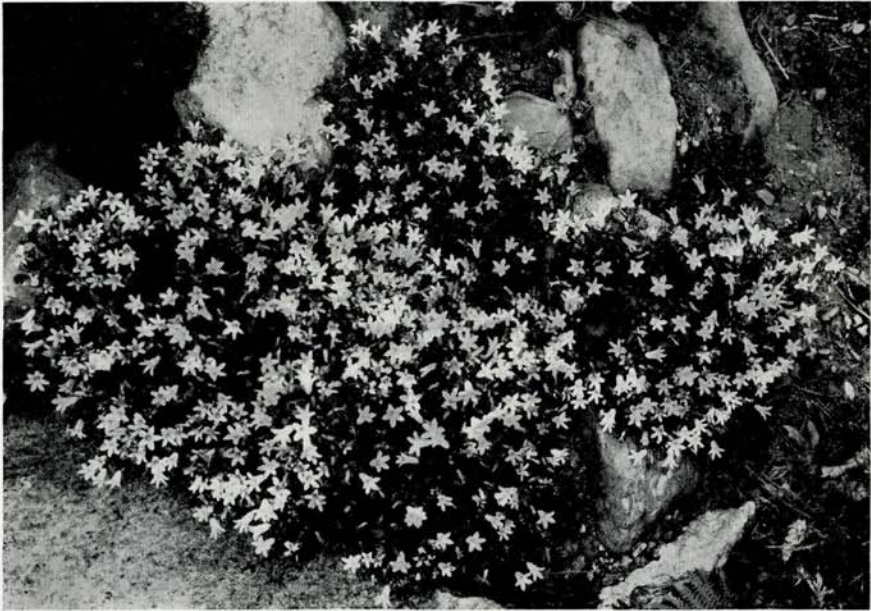
BY HABIT OF growth, a useful classification of rock and alpine plants could be:-

1. Erect plants, an herbaceous plant of vertical leafy stems, a small edition of the taller border perennials, as *Aquilegia alpina*.

2. Rosette plants, the foliage nearly all basal, often evergreen, the stems without foliage, as *Heuchera* or *Sempervivum*.

3. Drooping plants, usually branched and leafy, the stems falling forward on the earth or downward over rocks, rooting but little, as *Arabis albida* or *Alyssum saxatile*.

4. Creeping plants, with young growth creeping widely and rooting at the joints, as *Vinca minor* or *Thymus serpyllum*.



Campanula muralis

photo by Walter Kolaga

If one knows the type habit of a small plant, it is easier to give it a proper place in the rock garden where it will be displayed to advantage and yet not smother its neighbors nor be crowded by them. In the genus *Campanula*, all four of the habit types are known. This is an approximate classification of the species usually seen in rock gardens. Some species are of intermediate habit and some I have not yet seen. Descriptions in botany textbooks and catalogues of dealers are often misleading or incomplete.

Erect Campanulas

<i>cochlearifolia</i> (<i>bellardi</i> , <i>pusilla</i>)	4-6 in.	blue and white
<i>glomerata acaulis</i>	3-6 in.	violet
<i>pilosa</i>	4-6 in.	blue
<i>portenschlagiana</i> (<i>muralis</i>)	6-9 in.	blue-violet
<i>rotundifolia arctica</i>	3 in.	blue-violet
<i>rotundifolia olympica</i>	6-8 in.	violet

Rosette Campanulas

<i>abietina</i>	9 in.	purple-blue
<i>alpina</i>	3 - 8 in.	blue
<i>bellidifolia</i>	3 in.	blue
<i>lasiocarpa</i>	3 - 6 in.	blue
<i>orphanidea</i>	4 - 6 in.	violet
<i>piperi</i>	2 in.	blue
<i>saxatilis</i>	4 - 8 in.	blue
<i>waldsteiniana</i>	3 - 6 in.	blue

Drooping Campanulas

<i>carpatica</i> (in many forms)	2-10 in.	blue to white
<i>elatines</i>	6 in.	blue
<i>fragilis</i>	4 - 6 in.	blue
<i>garganica</i>	3 - 6 in.	light blue
<i>poscharskyana</i>	8 in.	blue
<i>raineri</i>	2 - 3 in.	lavender
<i>saxifraga</i>	2 - 4 in.	deep blue
<i>stansfieldi</i>	6 in.	purple
<i>tridentata</i>	6 in.	violet



photo by Reginald A. Malby

Campanula waldsteiniana

Creeping Campanulas

<i>allioni</i> (<i>rupestris</i>)	3 - 5 in.	violet
<i>arvatica</i>	2 - 4 in.	violet
<i>parryi</i>	3-10 in.	blue
<i>pulla</i>	3 - 8 in.	violet
<i>uniflora</i>	4 - 6 in.	purple

THREE CAMPANULAS

CLARA W. REGAN, Butte, Montana

C *Campanula lasiocarpa* is a frail-looking tufted plant, a native of northern Asia, Alaska and, no doubt, of the cold wet islands that bridge the two continents. So it has always been a wonder to me that it has never done very well in my garden where, certainly, the rigors of my climate could not compete with the chill air of the near-Arctic. It is impermanent,



Above: *Campanula lasiocarpa* in the rock garden of Mrs. Clara W. Regan, Butte, Montana.

Left: *Campanula garganica* in the rock garden of Mrs. C. Chanler, Huntington, Long Island.

not waiting for winter to die off — when I might blame it on the climate — but often immediately after blooming, without even making one rosette to perpetuate itself.

The leaves are smooth, green, spatulate and an inch or more long. The flowers are a lovely violet of great charm. The leaves are also toothed. Persons collecting this plant in Alaska say that it is variable in the size of the flowers and in other attributes.

Two small double Campanulas, *C. warleyensis alba* and *C. haylogensis fl. pl.* are very charming and not unsuitable for rock gardens. Blooming in August and on into September, they are very acceptable at a time of year when flowering plants are at a premium. The former is like two stars, one superimposed upon the other; the latter has yellowish green foliage and more double funnel-shaped flowers. Both have reclining stems but are still very neat and dainty of habit. They are easy to grow in gritty soil and full sun.

SURVIVORS IN A NEGLECTED ROCK GARDEN

A. D. S. B., Berkeley, California

RECENT YEARS brought other demands on my time and strength, and work and watering in my small rock garden were reduced to a minimum. Only lately have I taken account of my stock amidst the invading weeds. As a result, I find myself surprised at what has survived rather than at my losses. The dwarf conifers stand first among the rock garden survivors. They had scant protection from wind and storm but they remained shapely and flourishing through every vicissitude. There are three *Picea albertiana conica* grouped together and five other Piceas scattered on the rocks a short distance away. These are *P. excelsa* var. *brevifolia*, *P. excelsa* var. *maxwellii*, *P. excelsa* var. *pygmaea* and *P. excelsa pumila*. Their new foliage is an emerald green, deepening in color as it ages, and they seem never to have a shabby or untidy season.

Not far from the dwarf Spruces is a *Cryptomeria japonica nana*, glob-

ular and compact, and beside it a *Chamaecyparis* var. *plumosa minima*, its foliage almost mossy in appearance. On a flat shelf near the top of the rocks is a slow-growing trailing Juniper with small silvery foliage. It is *Juniperus communis saxatilis*, a native of Oregon. Two other Junipers (*J. communis compressa*) are not far away. Quite different in shape, they look like slender, upright Italian Cypresses of silvery foliage. Nothing on the rocks gives such a look of permanence as does this miniature forest.

Near the upper reaches of the rocks are two Daphnes. *D. collina* is evergreen and about a foot in height, though it is said to reach three and a half feet. It comes from Italy and Asia Minor and its deep rose-colored flower heads are deliciously fragrant. It blooms freely in spring and less profusely some months later. In a crevice below it is *D. alpina*; slow, deciduous and twiggy, it has never bloomed. Its flowers are said to be pink and white and fragrant.

Near the Daphnes, clothing some hot rocks with its tiny rich green foliage, is a large mat of *Globularia repens nana*. Its leaves are only one sixteenth of an inch or less in length and are so thickly set as to make one think of a patch of moss growing in full sun. In spring, it is studded with tiny pale blue puff balls. It is native to the mountains of southern Europe and Asia and, according to Hortus, the dwarf form is not common.

In a cooler spot below it is a group of *Iris graminea* with evergreen leaves and blue and purple flowers in late spring. This Iris is said to be fragrant, but I have never been able to detect its scent.

On a small flat shelf where some shadows rest for a part of the day is a little meadow of *Cyclamen hederacifolium (indicum)*. The ivy-shaped, mottled leaves are decorative in themselves as groundcover. In late spring, they disappear for a time and in autumn the dainty flowers appear by themselves before the leaves return. The type has rose-colored flowers and there is a pure white variety, which increases more slowly.

Two other bulbous plants are a delight to me. Both come from South Africa. The first is *Rhodohypoxis*, a small starry Amaryllid, loving sun and drainage. I have two varieties. The taller, not more than three inches high and white, is *platypetala*; the second which is hardly more than half the height of *platypetala*, is *baueri* with flowers of ruby-red. The flowers of both are set so thick as to hide entirely the short grassy foliage, when they bloom. Flowers and foliage disappear for a winter's rest.

The other South African is also one of the treasures of the rock garden. It is *Moraea edulis*, a small Irid of fleeting but exquisite beauty. In spring, it sends up a slender, stringy leaf, about a foot long, which flops over the ground and is hardly noticeable. Then, when winter is well past and warm spring days have come, the flowers suddenly appear as if by magic. They look like a swarm of small tropical butterflies, blue, lavender, yellow and white. Some break at intervals from a slender stem but most of mine stay so near the ground as to almost cover it. Their falls stand out horizontally, about two inches across, and are of exquisite texture, each with a yellow basal blotch. They seem to look straight up toward the sky. The flowers do not open until around eleven in the morning and close as soon as the sun leaves them. They can hardly know that they closed their eyes in South Africa and have opened them in California, for they see nothing but the same sun and the same sky and are oblivious to their surroundings.

This does not quite end the list of the survivors in the rock garden. There are three Gromwells; *Lithospermum prostratum* and its finer and more vigorous variety, Heavenly Blue, and *L. intermedium* which has

made a large clump with its drooping tubular flowers of a less dazzling blue.

Daphne cneorum, which took its leave in short order when hard times came, has been replaced by a small bramble, *Putoria calabrica*, from the Mediterranean region. At a short distance, this bears a curious resemblance in its effect to *Daphne cneorum*. It is shamelessly "ersatz", but it plays its part well in covering some of the bare spots among other plantings.

A tiny *Rosa rouletti* concludes this list. It came from British Columbia and is smaller than any of those I had found here. Both the flowers and the foliage have remained about half the size of those I had previously acquired.

ORCHIDS FROM THE ROCKIES

MARK AND CLAIRE NORTON, Laporte, Colorado

ORCHIDS AND the Rockies seem at first sight an incongruous combination of words. But Orchids the Rockies do have, eleven genera of them, according to Coulter-Nelson's "New Manual of Rocky Mountain Botany".

Showiest and most amenable to cultivation is the yellow Whippoorwill's Shoe or Ladies' Slipper, *Cypripedium parviflorum*. Its delicately fragrant flower is solitary and, though small, very decorative, a deeper, richer yellow than its larger counterpart, *C. pubescens*. Nowhere are these Orchids plentifully distributed, and they are becoming increasingly rare in the wild, due partly to collectors' enthusiasm and even more to grazing in the meadows and aspen woodlands they inhabit.

More plentiful and of even greater beauty is the Fairy Slipper, *Calypso bulbosa*. Throughout the central and northern Colorado Rockies, this exquisite little Orchid is to be met with by any hiker of the by-trails in early summer, when these trails lead through cold and moist woods of Douglas Fir. For nothing the Fairy Slipper likes better than a down log on which to grow. When perfectly content, its colonies spread as much as a yard across, though single specimens or groups up to nine are much more common. Each little plant sends above ground a single heart-shaped leaf and a showy, light rose-colored, drooping, "slipper" flower.

Calypso is harder to cultivate than the *Cypripedium*. We have never had success with it unless we moved a goodly clump of the rotting wood and mold with the tiny white tubers. *Calypso* is not a saprophyte, but seems to be completely dependent upon its particular mycorrhizal association.

Of the genus *Limnorchis*, Bog Orchis, the Rockies have four species, difficult to distinguish one from another. As the name suggests, there is but one place for these in the rock garden, and that a boggy spot below the pool. *Coeloglossum* and *Piperia* are included with *Limnorchis* under *Habenaria* by most writers.

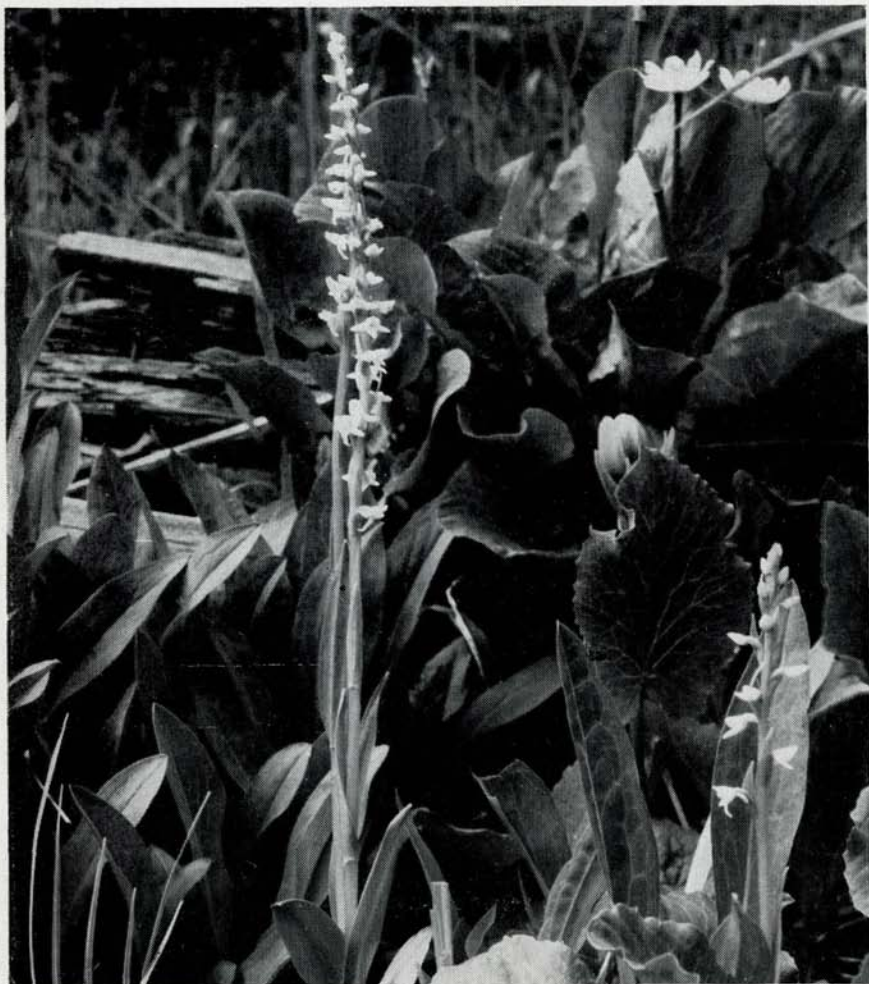
To search out *Spiranthes stricta*, Ladies' Tresses, one must, as with the foregoing, be willing to risk wet feet. It, too, requires bog conditions in the garden. But what a pretty little Orchid this is, with its many white blooms arranged spirally around the rather stout stem in two to three rows to form a snowy spike. It is the last Orchid of the season to bloom in the Rockies.

Epipactis gigantea comes only into the southern part of our range and is one which the writers have yet to discover in the wild. The two

species of Twayblade, *Listera convallarioides* and *L. nephrophylla*, and the one species of *Lysiella*, *L. obtusata*, are other Orchids which await us somewhere in the wilds.

When in bloom, the two *Peramiums*, *P. menziesi* and *P. ophioides* (now placed in the genus *Goodyera*) so much resemble the Plantain, from which they take their name of Rattlesnake Plantain, as to be easily overlooked by the Orchid hunter. However, on closer observation, each tiny bloom is seen to be typical Orchid and the tufts of greyish green, beautifully marked leaves are very attractive.

The last Orchid in the list for the Rockies is a black sheep, the Coral Root, genus *Corallorhiza*, of which there are three species. This plant has given up all pretense of manufacturing its own food and lacks any semblance of green herbage. It is an interesting object to meet with in its native habitat, but it is also better left there, since its peculiar feeding habits and weird appearance make it unsuited to becoming a successful garden denizen.



Habenaria (Limnorchis) hyperborea

photo by Mark Norton

ODD COUSINS OF THE CAMPANULAS

CLARA W. REGAN, Butte, Montana

ANYONE WHO has experienced the joy of growing Campanulas in variety knows that they do not adhere strictly to the pattern set by the family name of Bellflower. Even a moderate indulgence in this fascinating genus of plants brings out a multiplicity of flower forms, such as bells, cups, saucers, stars and tubes. This is bewildering enough, but when the gardener roams farther field into the family environs, to to speak, of *Campanulaceae*, he becomes even more amazed by what nature has done to this simplest of flower forms.

The genera most often found in gardens and rock gardens, embraced in the vast circle of *Campanulaceae*, are *Adenophora*, *Phyteuma*, *Jasione*, *Codonopsis*, *Edraianthus*, *Wahlenbergia*, *Platycodon* and *Trachelium*.

Of *Adenophora*, I can say little. Many species were raised from seed in the past, but I cannot remember that any lived to the blossoming stage. Whether they were weeded out or whether they succumbed to the climate I do not know. My interest in them was never very keen and after seeing the portrait of one of them in bloom, it dropped to zero. The resemblance to *Campanula rapunculoides* was enough to scare any gardener, rock or dirt, out of his wits, if he had ever had any experience with that terrible, ineradicable past. From all accounts, *Adenophoras* are very close to *Campanula*, with twelve to eighteen-inch stems set with small blue bells and of no special merit, especially for the rock garden. They are natives of China and Japan with a few species found in wooded areas of Europe.

Phyteuma is something else, very definitely an individualistic group bearing, to the casual eye, no resemblance to *Campanula* whatsoever. The taller ones are suitable for the border, where their masses of bluish heads produce a misty effect. The supreme *Phyteuma*, however, is *P. comosum* about which reams have been written in tomes dealing with the strange plants of the mountains. It dwells in nature on the limestone cliffs of southeastern Europe where its fat white roots delve far into the clefts and minute crannies of impregnable rock, and its masses of coarsely toothed, dark green, metallic leaves lie flat and close to the cliff face itself. Such a plant, so irrevocably wed to irreproachable drainage, would be, and is, hard to manage in gardens where it misses the coolness of the rock crevices, the warmth of the rock face, and the drainage so necessary to its well-being. Some people grow it in limy scree, but my own ideas of culture lean toward crevice treatment. In crevices between limestone slabs, my several experimental plants have been installed to their liking, it appears, as they have done well in them. Misfortune, however, has dogged them and the *P. comosum* before the present incumbent was killed by kindness — overwatering during my absence in midsummer. I lost not only the precious *Phyteuma*, but also the even more rare *Gypsophila aretioides* and all my choice *Lewisia*s.

The inflorescence is one of the most unique known to the gardener — a compact head of small blue flowers shaped like a shortened Indian club (or pop bottle) with long, thin tips curving outward. This bizarre arrangement is further accentuated by the tips darkening very noticeably towards the end to quite a deep shade of amethyst, so that the result is beautiful, even if the effect is eerie. The flower clusters are very short-stemmed and seem to nestle among the dark leaves. *P. comosum* is July flowering.

Phyteuma hemisphaericum is said to rank next to *P. comosum* in desir-

ability. Though I have bought this one from several different sources, the plants always turn out to be *P. orbiculare*. Not that the latter is not an ornament to the rock garden, but no matter how interesting and pretty it may be, it is not the longed-for, wild, high beauty of the Alps. *P. hemisphaericum* is a small plant with very green, glossy, grass-like leaves not more than an inch or two high, and the same bottle-like heads of tiny blue flowers set in a green bract. *P. orbiculare* has rounded heads of bright blue flowers, with wildly interlacing antennae-like tips over lance-shaped leaves. It grows eight to ten inches high.

Jasione perennis I raised long ago from seed in my earliest rock gardening days. I found its round balls of small blue flowers so dull and uninteresting that all were consigned to the rubbish heap. Last summer, I bought a plant of *J. humilis*, planted it in the rock garden where it spread quite widely in the course of the season, and bore in August lovely vivid blue heads somewhat similar to the annual Cornflower. However, it grew too fast and was too tall — about ten inches instead of the advertised four — for my rock garden and will be put in the border. It might be kept small, trim and “unspreadable” in a poor, dry scree.

Codonopsis is a strange Asiatic genus of which I have only one representative, the quite common *C. ovata*. As I have remarked before in these pages, it is late pushing its way through the soil and I am not aware of its awakening, until I start to weed around the other plants. Then I begin to think I have disturbed *Mephitis mephitica* himself, so pungently strong is the odor of skunk. Our western *Polemoniums* are mere weaklings in comparison. Like its animal prototype, *Codonopsis* is innocuous when left undisturbed and looks just as innocent, for the velvety grey-green oval leaves are quite lovely. The flowering stems are long and gawky, in some species twining, and the rather large, short bells are an indefinite shade of grey-blue on the outside, but inside have subtle markings of orange and purplish maroon. While most known species are bell-shaped in varying shades of blue with different interior markings, I was interested to note in a recent plant list one called *C. vinciflora*, which is described as having “saucers of pale blue”. This is a departure from the general plan of the family. My one species grows in full sun in light, well drained soil.

Edraianthus is *Wahlenbergia* and vice versa. Throughout the years, sometimes one name represented most of the species belonging to these genera and sometimes the other. The gardener never knew where he was in speaking of these plants so closely allied to *Campanula*. At one time, the cluster heads — *graminifolius*, *dalmaticus*, *tenuifolius* and so forth — were put into the genus *Edraianthus*, leaving the single flowering types — *pumilio* and *serpyllifolius* — in *Wahlenbergia*. In T. C. Mansfield's quite recent book, “Alpines in Color and Cultivation”, all of the above, both capitate and single, are under *Edraianthus*, putting New Zealand types in *Wahlenbergia*. Hortus makes the same distinction, leaving all species of the southern hemisphere, in Africa, New Zealand, Tasmania and Australia, in the latter genus. This would be an easy distinction for the rock gardener to bear in mind, if the botanists would only cooperate and try to keep it that way. None of the *Wahlenbergias* has been hardy here. This is not astonishing, as not one single plant from “down under” has ever lived to see spring in my high Montana garden.

The cluster-head types are very similar in that they have narrow, grassy leaves, sometimes hairy or ciliate, weakly reclining flower stems, three to four inches long, with the flowers at the end. The attractiveness of the plant varies with the color of the flowers, some being a washed-out blue, others deepening to a nice blue-purple. The individual flower

is bell-shaped, but they are squashed together into a tight head. They are easy to grow in sun and any good, light soil; hardy but not, I am afraid, very long-lived.

Edraianthus pumilio is a beauty, still with the fine grassy leaves, but beautifully silvered, gathered into small tufts which form prickly rosettes quite in the best alpine manner. The little flowers sit upturned on their tufts, each a dear little bellflower of pure, vivid lilac. There are so many that they cover the plant. *E. pumilio* is hardy, but prolific blossoming shortens its days and new plants should be kept coming along from seed — if you can get it. *Pumilio* likes scree conditions.

Edraianthus serpyllifolius is a rock garden gem of the first water, described enthusiastically by those who have grown it which, alas! does not include this gardener. I have striven for it for twenty years, but all in vain. At present, I have very rosy hopes for the future. From photographs and descriptions, it seems to produce large flowers of glowing violet, an inch or more across, over lance-shaped leaves. It is said to prefer richer soil than preceding species. This and other members of the family are natives of Dalmatia and countries adjoining the Adriatic coast in southeastern Europe.

Platycodon is too large for most rock gardens, but *P. mariesii* does present a fine effect, if not an alpine one, in late August when anything that blooms is welcomed without carping about quality. Not that *P. mariesii* is not beautiful in itself for it is, with lovely wide bells of blue-purple or white flushed with blue. (And a new pink variety has just come on the market.) It is very late coming up in spring and throughout the summer looks like a small, self-contained shrub, about ten inches high, so that it does not seem at all out of place in an alpine or rock garden. The fat round buds, to which it owes its common name of Balloonflower, are very curious and beautiful. I have never been able to keep this plant long in the border, but it is practically immortal in the rock garden, which proves the value of good drainage. *Platycodon* is a native of the Orient.

Symphyantra is so very near *Campanula* that only minor botanical differences divide them. Being given to short tenures of life, they are not often seen in gardens, though their culture is very easy. They are natives of the Caucasus, the Levant and the countries of southeastern Europe. The genus has been neglected in many gardens principally because it seems a great deal of trouble to grow a plant for two years, have it bloom for two weeks and then die — which the two species I have grown did at once with the greatest finality. They did not even stop to make seed, just as if they were not at all interested in perpetuating the race.

Symphyantra wanneri is, in effect, a beautiful small *Campanula* of quaint decorative value. If planted in a small cliff or crevice — which it should be, in recognition of its rock-loving proclivities — it sends out short lateral shoots. These shoots cling to the rock face with the pertinacity of a limpet. The leaves are hairy and sharply toothed, quite long and narrow in outline. The flowers are borne in quantity and are a rich violet or more nearly what I call in my own mind, "royal purple". They have rather a squarish appearance, due to prominent nerves on the outside of the corolla. If this plant had more lasting qualities, it would be one of the most cherished ornaments of the midsummer garden.

S. hofmannii is the only other member of the family that I have grown and it has none of the elfin charm of the foregoing plant. It is rather coarse with large, lax, hairy leaves and large bells of creamy white on twelve inch stems.

The last plant on my list is also one of the very last to bloom, beginning in August and carrying over to September. This, of course, gives it extra value to anyone concerned with the sad appearance of the rock garden in autumn. The late stayer is *Trachelium rumelianum*, also called *Diosphaera dubia*, and is another native of the Balkan Peninsula which is so rich in members of the *Campanulaceae*. It sets out small velvety leaves, oval and toothed, radiating on short stems from a central rootstock. The stems are only three to four inches long; at the end of each, at the proper time, appears a head of exceedingly tiny flowers, each a wee blue tube. There are so many of them en masse, that the plant has the appearance of filmy blue lace. *T. rumelianum* looks best and lives longest in a crevice.

EASTERN CARE OF WESTERN PLANTS

FRANCES KINNE ROBERSON, Seattle, Wash.

I have never tried to grow western plants in the East, so it would be presumptuous for me to try to advise those who have, except that I have seen many of these plants here where they grow. I think drainage is the prime requirement, not just surface drainage to keep the water from collecting around the crown, but drainage that permits the free passage of moisture and air through the soil. Perhaps with their leaves protected from the rigors of mountain climate, they breathe more through their underground parts. At least, that is a safe assumption when one is preparing the bed.

This article, I might point out, is not written for the rock gardener who grows western plants successfully — he is on his own. But for the beginner who wishes to try rock garden type plants from the Rocky Mountains, I would offer some suggestions. I would even suggest that a special bed be prepared to receive these plants. Build this bed six inches or a foot above the surrounding area, with the center the highest. Keep the bed narrow, preferably not over four feet wide. Then cover

Here is the picture of *Caltha leptosepala* which should have illustrated the article on "Western Water Dabblers", by Mrs. Edith Hardin English, but arrived too late for inclusion in the July-August issue of the Bulletin.



with the nearest to glacial debris that you can find, practically pure sand and gravel. If necessary, wash out excess clay and fine material, for if you can make mud pies with the soil, it won't do for western plants. Add a few shovels of humus, if you wish, but no manure or commercial fertilizers yet. Remember — doctors don't feed heavily after an operation. Wet the whole bed down and let it settle. Then provide half shade over most of it, unless you are going to grow only *Phlox*, *Eriogonum*, *Lewisia* and plants of sunny foothills.

When you receive the plants, set them out in this bed, tamping them as tightly as possible. Then water daily — twice daily if plants are received in very hot weather. In this gravel, frequent watering is essential: without the gravel, much water is fatal. When the plants become established, they may be moved, in their shovel full of gravelly soil, to their more elegant place by some rock in your rock garden. Stone chips may be arranged under the crowns to help keep them clean and dry. New roots will go out to whatever enrichment the plant may become accustomed. Canape and caviar do not mean much to a mountain man, nor Vigoro to an alpine.

Drainage isn't the whole story — just most of it. After drainage, moisture is next in importance. If I used the terms wet, medium and dry, could I make myself understood to you web-footed folks in the East? You know the requirements of Waterlilies and Cat-tails, so we shall skip these mud plants to deal with *Parnassia*, *Caltha*, *Primula parryi*, *Dodecatheon radicum*, *Saxifraga arguta*, *Mimulus* and a host of plants that want water available most of the time, even at the risk of an icy dunking now and then. These, I shall call wet site plants. I find them out in the open at timberline, but confined to stream banks in partial shade lower down. I think the shade was there and they moved into it — not for the shade, but because it was moist and cool. Perhaps they like the shade in the East for the same reason. Moving water is always available within a root's length of the plant but air is not sealed out. The soil is of rocks, gravel and humus, never mud or muck.

Medium can be defined as in between, not permanently wet nor long dry. You will find it on the high ridges, the slopes of the mountain valleys and in the dense forests. In the forests, the gravel of the mountains is covered with the humus of decaying vegetation, so make your own fern bed with its *Trilliums*, *Pyrola*, *Tiarella* and *Calypso* of rotten wood and sandy humus over gravel or other drainage. Next spring, if you can dig down to subsoil with your bare hands, it is about right. Water as much as you please, if you have provided what I call drainage, or wait for a shower if your plants have established pipe lines to humus reservoirs.

Dry should be understood as a botanist understands large. It doesn't mean a thing unless you know all about it. A dry site plant is dependent upon moisture to live as others, but it has the ability to adapt itself to the special conditions of its site which, with me, are the sagebrush plains, the sunny foothills, and the timbered shallow-soiled ridges of middle elevations. The drought is usually seasonal with medium or excess moisture at the plant's growing season. What seems strange is that these plants will usually do equally well in the gravel bed described above, with its daily watering. The drainage is the answer. *Lewisia rediviva*, *Viola vallicola*, *Calochortus* and summer dormant plants would be safer, perhaps, with the water supply off during July and August. They like a vacation, too. During winter, they plan and prepare for their spring flower show.

Don't expect an alpine to live like a GI. Give it room to be by itself or with its own kind — without a disapproving stranger or even a relative peering over its shoulder. Protection yes, but not suffocation.



photo by Dr. S. R. B. Cooke

Parnassia fimbriata is one of the loveliest natives around the pool in the rock garden of Mrs. Warder I. Higgins which is located at the foot of Frost King Mountain in the Tobacco Root Range, Montana, at an elevation of 8,300 feet. It is easily transplanted, even when in bloom, and seeds perfectly. This species is partial to mossy banks besides springs and streams in the mountains of Colorado, Montana and as far north as Alaska.



THE AMERICAN ROCK GARDEN SOCIETY

TO THE EDITOR: In my article on "Four Native Iris of Northern California" in the last issue of the Bulletin, the text should have read: "hardy in a climate as low as 6° below zero" and not 60° as printed. I'm afraid some native Californian may think that I referred to 60° below in California and that would be bad! Seriously, though, I would appreciate correction of this typographical error.

I also want you to know that I think the Bulletin is good and improving steadily. I especially enjoy your giving us articles from different sections, which makes for better balance.

—Mrs. Oscar L. Nelson, Orick, California.

FROM THE EDITOR: During the current year, special efforts have been made to obtain articles from various sections of this vast country. Favorable comments indicate that our efforts have been somewhat successful — and also appreciated. We want to continue and enlarge this plan and with the cooperation of our members, we can do so. We are now soliciting articles for the 1949 issues of the Bulletin. Won't you join the list of contributors? The Editor will be very glad to receive articles at an early date, for a well-filled file of editorial material is of great assistance in planning issues in advance.

SEED EXCHANGE: Our Seed Exchange Director, Mrs. L. D. Granger, Warren Mass., announces the following seed is available for distribution among members of the society. Request for seed should be accompanied by stamped, self-addressed envelope.

From Mrs. Pete Johnson, Rexford, Mont.: *Anemone patens nuttalliana*.

From Mr. H. Lincoln Foster, Norfolk, Conn.: *Anemone vernalis*, *Aquilegia akitensis*, *A. saximontana*, *Armeria caespitosa*, *Dianthus glacialis*, *Dryas suendermannii*, *Trollius laxus*.

From Mrs. Doretta Klaber, Quakertown, Pa.: *Silene alpestris*, *Coreopsis rosea*.

From Mr. J. E. Mitchell, Barre, Vt.: *Anemone baldensis*, *Armeria maritima* var. *alpina*, *Jasione perennis*, *Papaver rupifragum*, *Salvia nemorosa*, *Saxifraga macnabiana*.

From Mr. O. E. Schoenstein, Ardsley, N. Y.: *Saxifraga aizoon* mixed (*densa*, *marginata*, *rosea*, *baldensis*, *cochlearis*, *lingulata lantoscana* and others).

From Mr. Arthur H. Osmun, Plainfield, N. J.: *Aquilegia caerulea*, *Collinsia verna*, *Malva moschata alba*, *M. moschata rosea*.

From Mrs. W. H. Haydon, Riderwood, Md.: *Primula japonica* (candelabra, from plants raised from original seed distributed by American Primrose Society).



Above: *Iris innominata*

Below: *Iris chrysophylla*



Mrs. Drew Sherrard, Oregon, kindly furnished these photographs of *Iris innominata* and *I. chrysophylla*, described by Mrs. Osear L. Nelson in the July-August issue of the Bulletin. They were taken in her rock garden at Oswego, Oregon.

From Mrs. Anna Johnson, Butte, Mont.: *Anemone magellanica* (does not spread under ground), *A. sylvestris*, *Aquilegia* hybrids — *akitensis*, *faurieri*, *pyrenaica*, *Saxifraga aizoon baldensis*, *S. aizoon* pink and white mixed.

From Mr. Robert M. Senior, Cincinnati, O.: *Campanula saxatilis* (an article on this *Campanula* will appear in the November-December issue of the Bulletin, by Mr. Senior).

In sending seed to Mrs. Granger, Mrs. Haydon wrote: "I am sending you a little of my seed of *Primula japonica*, suitable for a large rock garden. It needs shade, moisture and good drainage. This Primrose will disappear in late fall for winter rest and come up strongly in spring. Seeds planted in pots in a mixture of leafmold, soil and sand left in a moist shady spot all winter will (or should) germinate and produce plants in the spring, which will bloom the following spring. *Primula japonica* grown to perfection is lovely. I have had as many as six tiers of flowers on tall stems. It should be used en masse."

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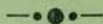
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