

# BULLETIN

*of the*

## AMERICAN ROCK GARDEN SOCIETY

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March-April, 1951

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*The American Rock Garden Society, incorporated under the laws of the State of New Jersey, invites you to join with its members in the pursuit of a better understanding of the problems of rock gardening. The annual dues are \$3.50. Address all communications to the home office, 19 Pittsford Way, Summit, N. J.*

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G. G. Nearing, Editor

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### A TRIP TO LOVELAND PASS

VIRGINIA JOHNSON, WHEAT RIDGE, COLORADO

**T**HIS summer in mid July, we made an interesting though hurried trip through our own Colorado Rockies. Although I discovered no new species, the trip proved rewarding, for I saw several that were new to me, notably those which seem to prefer the moist conditions of the western slope to the drier eastern slope of the Rockies.

Dr. Worth, you do not know what you are missing by failing to see the flowers on Loveland Pass. The mountain scenery alone is worth coming for—reddish snow-flecked peaks swimming in a sea of clouds and mist, peaks that retain their snow patches well into late July.

At the top of the pass, we paused to admire nature's rock garden filled with alpine goldflowers, *Rydbergia grandiflora*, which look like giant sunflowers on four-inch stems. Beside them grew waving masses of the dark blue sky pilot, *Polemonium confertum*, and its cream-colored companion, var. *mellitum*. (Both grow like weeds in my garden, where they are planted in gritty humus, but stubbornly refuse to bloom.) Occasionally we saw that little gem, the fairy primrose, *Primula angustifolia*, which varies in color from lilac to fuchsia, and peers shyly from behind gray, mossy boulders. Its affinity for deep rock crevices makes it very hard to dig without serious injury to its ramifying roots.

However I took one, and after many weeks it is still alive! It is planted in very gritty soil, which may account for its health, but perhaps the wiser way is to save my boasting until next spring, after it has passed winter's severe test. Of course seed it undoubtedly the best method of raising this *Primula*.

Above the *Polemonium* garden was a steep rock outcrop, which after much huffing and puffing I finally climbed. There I found what I was searching for—a tiny blue and white flower that clung stubbornly to an overhanging ledge—a pretty dwarf columbine only six inches high, with hooked spurs—*Aquilegia saximontana*.

While I paused to rest from the climb and enjoy the tiny nodding flowers of the columbines silhouetted against jagged boulders, a furry reddish brown marmot the size of a rabbit darted out of his hole three feet away, squealing indignantly at my trespass on his property. His rebukes directed my glance to another little alpine nestled cozily in a crevice and smothered under tiny white flowers—a pretty rock jasmine only a third the size of the one we raise in our gardens. Mingled with the jasmine were several sky-blue alpine *Mertensias*, *M. Bakeri lateriflora*, which in my garden combines attractively with the nodding yellow fritillary, *Fritillaria pudica*, both of them bulbous plants.

In the sub-alpine meadow below, grew another natural garden, of blue shrubby *Polemonium* and gold shrubby cinquefoil, the majestic purple monkshood, *Aconitum columbianum* and a mass of the large, striking snow buttercup, *Ranunculus adoneus*, with its delicate grassy foliage and lustrous gold flowers shaped like an anemone, a true aristocrat of the lowly buttercup family. Among the snow buttercups were scattered several *Trollius albiflorus*, a cream-colored beauty about six inches high, the single flower shaped like an anemone also.

In a slightly drier spot at the edge of the meadow stood some striking cobalt blue flowers that from a distance looked like a rare species of gentian, but proved to be a small *Penstemon*, *P. procerus* or *P. Rydbergi*. This form, carrying its florets in very compact clusters, might make a good rock garden plant if set in a gritty clay soil and given the extra water its meadow home seems to suggest. Some of you members who have grown it may have suggestions to offer about its cultivation.

On the way down the eastern slope of the pass, there are many cascading streams near the highway. We had only to step from the car to be refreshed by the sight of a sparkling-diamond waterfall studded with the garnet of the king's crown *Sedum*, *S. integrifolium*, azure *Mertensia*, *M. ciliata*, the ruby of Parry's primrose, the pearl-white candytuft, *Cardamine cordifolia*, and tiny waxy buttercups of shining gold. Then we took time out for a drink from the waterfall. For the pause that refreshes, what drink can compare with the icy snow water from these high mountain streams?

Near the bottom of the pass were a few rare gentians, and I stress the word *few*. The prettiest one of the lot, I think, is the fragrant twisted gentian or perennial fringed gentian, a tiny thing only four inches high with brilliant violet-blue flowers that are perfect miniatures of the larger fringed gentians. But this *Gentiana barbellata* has a blue all its own, as well as a distinctive aroma of spices. It is so scarce, I am afraid I could not live with myself if I dug a single plant. This year, however I tried a few seeds, which so far have not germinated.

The taller *Gentiana Parryi* is not quite so scarce, and the two plants I have are doing nicely on a well drained slope in half shade, under the high branches of a black walnut tree. These are more gentian-blue than *barbellata*, resembling pictures of *G. acaulis* that I have seen, or you might call this plant a tall *G. septemfida*, so alike are the two.

In the transition zone, the yellow pine region, there were several groups of the dusky *Penstemon*, *P. glauca*, grape-colored, in company with mats of white alpine phlox, both growing on rock slides. Occasionally we glimpsed hosts of creamy wand lilies, *Zigadenus elegans*, among the pines, interspersed with red paintbrushes and Colorado blue columbines, *Aquilegia caerulea*. Masses of shell-pink twin-flower carpeted the forest floor.

As we swept past, I spotted a splash of purple, and stopping to see what it might be, discovered a lovely deep violet wallflower, the only one of that color I have happened on, though there are many orange and yellow ones to be seen.

Perhaps next year in Wyoming and Montana I shall have the privilege of seeing some of the rarer plants which Dr. Worth mentions. But I have an idea that Colorado too has rare plants in secluded places, waiting for someone who can leave the beaten track. That is, they may be there to discover *if* the sheep have not reached them first.

## A DIFFERENT DRY WALL

IDA A. THOMAS, PATERSON, NEW JERSEY

**U**PON acquiring a piece of land several years ago, a friend found the property in the rear four feet higher than his own, with a privet hedge at the top of the bank. This bank, fifty feet long and sloping west, had been washed down for so long a time nothing grew on it. In considering what to do about it, a poured cement wall seemed ugly, and the stone we could buy, smooth, round field stone, wasn't much better.

At the time an old concrete walk was being torn up, and when I saw the irregular pieces lying there to be carted off to the trash dump, it occurred to me that here could be the solution of the problem. These pieces of uniform thickness could be broken into proper sizes for building a dry wall. Since one of the narrow faces always was straight, it did not matter whether the units were square or triangular or some other shape, once they were placed in the wall.

At the base of the bank, to give good drainage, we dug a trench a foot wide and deep, three feet out from the property line. This we filled almost to the level of the soil with broken concrete and small stones. On this we laid a layer of the concrete pieces, which were about five or six inches thick, edge to edge, using a line to make a straight face, and a carpenter's level. About three inches of this first layer came above the ground level.

It is essential that the first layer be level, for in this way the level of the later layers is established, and the wall must not look as if it might slide at any point.

After spreading an inch or so of soil on top of the first layer, we laid a second tier of the concrete pieces about an inch further back and slightly sloping into the bank, making sure that no two joined directly above a joint in the layer below, except where we occasionally wanted a long vertical opening for certain plants. As we built, we filled back of the wall with eight to twelve inches of prepared



The dry wall before planting

soil, adding lime if needed, omitting it where we wished to place acid-loving plants, and tamped the fill so that no air pockets would remain. Any space behind the prepared soil we used for stones and broken concrete we wished to get rid of, helping the drainage as well as filling the space.

Another layer of prepared soil made a bed for the next layer of blocks, and so on to the top of the bank. Irregularities in the sides of the blocks made large hidden pockets which were filled with the soil, and here and there the blocks were spaced wide apart to accommodate the larger plants. Occasionally we would set a large piece of the concrete so that it stuck deep into the bank, to make sure of binding the layers beneath.

Back of the top foot of wall we made a planting bed of the same good prepared soil, first placing an 18-inch wide strip of galvanized iron set on edge down along the line of privet, and projecting three or four inches above the soil level. This prevented the hedge roots from trespassing on our side to steal the plant food. If the top edge of the metal does not project high enough, they will even grow over it and down again into the soil prepared for choicer plants.

When the wall was first completed, the broken concrete face had a light gray hue, but in only a few weeks it began to weather into a pleasing neutral darker shade, making a good background for the wall plants growing against it. Using the usual plant material, we had plenty of green at all times and bright color in different seasons, as do all dry walls. Never have I seen lavender bloom as it has done in this particular wall.

Subsequently I have used old concrete walks and driveways many times for high and low walls, and found it most satisfactory both in appearance and as a growing medium. In low walls I usually have the face pieces smaller, sometimes six to eight inches, while in longer and higher walls they may better be twelve to thirty inches, with a smaller one occasionally to vary. In the actual building the same kind of skill and knowledge needed in building a rock garden are required for selecting and placing the pieces.

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Haven't you had some experience in the construction of a rock garden, the growing of rare and difficult plants, of which you would like to tell the 600 other members of the society? Each of us has done something to be pleased about, something a little out of the ordinary, and the purpose of the Society is to exchange ideas. If you possess a vigorous literary style, write us an article about this experience, or about some group of plants which particularly interests you, and send it to us. If you feel apologetic concerning your skill in handling words, write the editor a long letter on one special theme, giving all the facts and every little detail, letting him dress it up by putting the ands, buts and whiches in appropriate order. Any subject in the rock garden field which interests you engrossingly is sure to interest other rock gardeners. Let us hear about it.

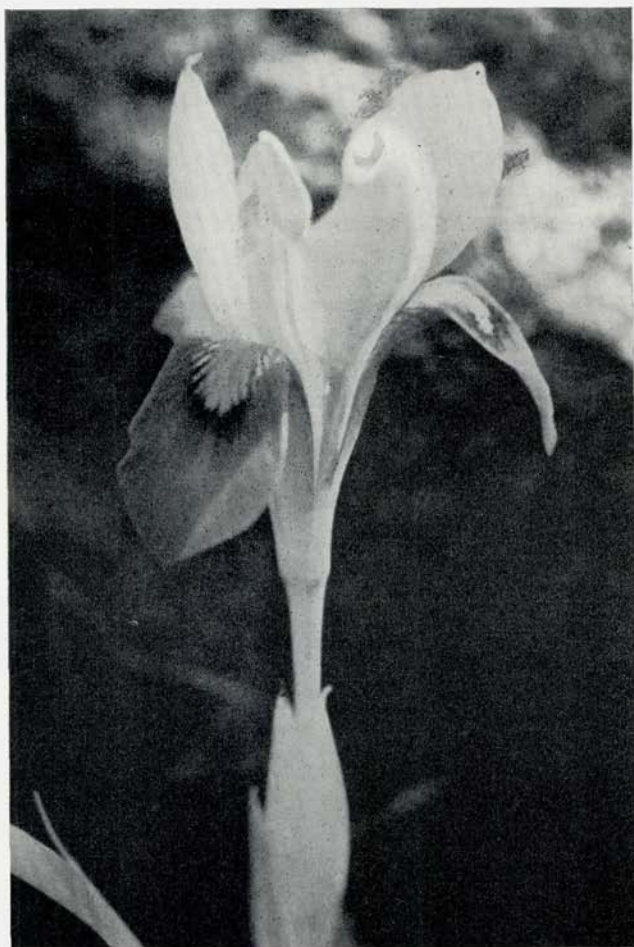


Photo by Walter Hamblin

*Iris verna*

### VERNAL IRIS

STEPHEN F. HAMBLIN, LEXINGTON, MASS.

**I**N the hills of Kentucky and southward the first settlers found a tiny Beardless Iris which Linnaeus in 1753 named *Iris verna*. It is one of the smallest species and very easy to grow when not crowded by other plants. It makes a rather tight clump of narrow dark green leathery foliage, nearly evergreen, and above this in May arise solitary flowers on leafless stems, like a Crocus that has become an Iris. Or you could say that it was a Siberian Iris blooming at but 4 inches above the soil in early May. The original color was a deep violet with a wide orange throat where a beard would be on a Bearded species. The orange throat is the special character. Seed seems to be rarely listed, but many dealers offer plants.

For a rock garden or narrow border this is the best of all dwarf Beardless species. There is nothing difficult about it at all. Just let it alone and in time

it will make a goodly clump, for it does not walk about as does its neighbor, Crested Iris. As it is an early bloomer, it will grow in some shade, and it prefers a soil of moist humus. This truly American plant of such easy culture is rarely seen in modern gardens, and other dwarf species of less easy culture are attempted. If you are interested in dwarf Iris this is a good buy for permanence and ease of culture.

In the wild, there are natural variations, mountain form, piedmont form, coastal form, available at less than a dollar. Mrs. J. Norman Henry has found a half-dozen forms, selling at a higher price, but still a good buy as a novelty. Vernal Evening is deepest lavender Vernal Night deepest violet; Vernal Dawn is light pink; Vernal Simplicity is pale lavender, the orange throat nearly absent; Vernal Sky is palest blue; Vernal Fairy nearly white, tinted lavender, and Vernal Snow is purest white. This dwarf has all the appeal of the small species and is willing to grow. Plant breeders would do well to make more of it by seedlings or even by hybrids.

## WHAT'S IN A NAME ?

BETTIE CONNOR, LOUISVILLE, KENTUCKY

**E**XPLORERS and builders have ever found play for their imagination in naming roads, settlements and features of the landscape in new areas. Some of these titles like "Scarred Rock" and "Portland" indicate appearance or utility, others such as "Joe's Flat" and "Hopeful" merely reflect vanity or the mood of the moment. The atlas abounds also in designations as delightful as "The Trail of the Lonesome Pine", as picturesque as "Satan's Kitchen", as aptly descriptive as "The Panhandle".

Why should not the creator of the miniature alpine landscape follow this custom? If you have laboriously constructed mountains and cliffs, valleys and plains, appropriate titles for them will add new interest to your handiwork and do much to heighten the illusion of a full-scale creation of nature.

Before you condemn this as childish and a waste of time, let me hasten to point out its practical aspect. Just as names are important in distinguishing continents and cities, planets and persons, so the christening of all the important features of your alpine world will help to identify the plants it harbors. When hundreds of little citizens all clamor for attention, how easy it is to forget where a new tenant has been placed. Labels at best are seldom permanent, nor do they ever contribute to natural beauty.

But if your record book includes a little map of the garden complete with such topography, and your notes on each specimen carry a line such as "planted on the Limestone Terraces above Chaos Canyon", the home of each plant is quickly established.

Finding appropriate names is a fascinating pursuit. Geographies, tourist guides and travel books abound in provocative descriptions. The dictionary and thesaurus will add many more. In my own backyard range of hills and lowlands, pools and streams, I never fail to find delight in visiting such highlights as "Maid's Bower", "Enchanted Subway", "Bellflower Heights", "Fragrant Interlude" and "Thatchtop".

Experience has revealed, however, that it is seldom wise to pass on such titles to the casual visitor. To point out a 4 foot hill as "Mount Alpine" or a 2 foot



drop of water as "Quicksilver Cataract" is to invite the circling finger behind one's head. The only appreciative understanding I ever received came from a spike-heeled sightseer who had much difficulty retaining her balance on a sharply winding path. When I told her she was negotiating "Corkscrew Creep," she not only agreed vehemently, but added a few choice adjectives of her own.

I would also warn those who may be tempted to let their imaginations take over in this absorbing pastime that it is likely to carry away both your common sense and your proper respect for decorum. In no other way can I explain the descent into folly which led me to call my largest body of water (fully 6 x 10 feet) "The Aquatic Ocean"; the slope above it "Tiers of Joy" and (touching bottom) a cut-away for a little stream "the Gorgeous Gorge!"

## A BOOK ON THE GERMINATION OF SEEDS

Discussed by ROBERT M. SENIOR, CINCINNATI, OHIO

**F**OR those who are interested in the subject of seed germination, a book written by L. V. Barton and Wm. Crocker of the Boyce Thompson Institute, and entitled "Twenty Years of Seed Research" gives much valuable information. Although the volume should be read in its entirety, the following information extracted from it gives some salient points of particular interest to rock gardeners.

First, in regard to the storage of seeds. With most seeds storage at a low temperature is usually more advisable than at a high one. Many seeds retained their viability for several years at the low temperature of 23 degrees Fahrenheit. Delphinium seeds, for example, which deteriorate rapidly, were kept in this way for long periods. Incidentally, fresh seeds of desert plants must have dry storage for some months before being sown. Then on planting, many of them will germinate with reasonable promptness if kept 16 hours at 50 degrees F, followed by an eight-hour period of 68 degrees.

Other experiments in germinating seeds are equally instructive. Seeds of many evergreens, roses, gentians, put in moist peat moss, and kept for two months at about 41 degrees, then sown in the greenhouse, give excellent results. Incidentally, all of us know that seeds of many rock garden plants often will not germinate at all unless subjected to low temperatures for a certain length of time.

Apparently there are seeds that will germinate satisfactorily only if planted out in spring or at the beginning of summer. Cotoneasters and other seeds with hard coats, if kept moist at a high temperature over the summer, then kept at a low temperature over the winter, will usually germinate the following spring.

There are seeds such as those of certain peonies, lilacs, viburnums, that form their roots long before the shoots appear. With these the roots start to grow at fairly high temperatures. After rooting they must be subjected to low temperatures, somewhere between 33 and 50 degrees before the shoots will start. Therefore these should be sown about May or June and carried over the winter, after which the shoots should appear the following spring. If these seeds are sown in fall, the chances are they will rot over the winter.

Seeds of several of our wildflowers such as Trillium, Sanguinaria and Smilacina seem to have a combination of root and shoot dormancy. Briefly, in order to induce germination, four steps are required:

1. Low temperatures, 40 to 45 degrees F for about three months to after-ripen the seeds

2. High temperatures of about 70 degrees to produce root growth
3. Low temperature of about 41 degrees to start ripening the shoots
4. High temperatures for about three or four months to start growth of the shoots

Quite a lengthy process requiring much patience !

In conclusion, it might be of some interest to rock gardeners to relate an experiment of the writer. In the latter part of August, 1949, we planted ten different kinds of seed of the 1948 crop. Hardly a one germinated that fall, and the germination the following spring was extremely sparse. However, when similar seeds taken from the same packets, were planted about the first of January, the germination in spring was fairly satisfactory. Of course, in both instances, the flats were kept in a cold frame over the winter.

Ed. Note. Lest the reader be unduly terrified by the intricacy of the man-made temperatures for wildflower seeds, it should be noticed that these parallel roughly the natural seasons. Nature manages to germinate these seeds by the million. However, if you let nature do the refrigeration for you, protect against mice and ants—especially ants.

## THE GENUS EDRAIANTHUS

ROBERT M. SENIOR, CINCINNATI, OHIO

**M**ANY years ago, before botanists began splitting genera to the extent they do today, plants of the genus *Edraianthus* were generally included in the genus *Campanula*, while other taxonomists grouped them under the genus *Wahlenbergia*. Briefly, one of the main differences between a *Campanula* and an *Edraianthus* is that in the former the capsules dihisce (open to discharge their seeds) low on the side, so that the seeds must pass through the calyx, whereas in the latter they dihisce at the top of the calyx, between the calyx lobes. As between *Wahlenbergia* and *Edraianthus*, where the extrusion of seeds is at the top of the calyx, there are other slight differences in structures as well as in habitat. So today botanists generally include under *Edraianthus* those plants growing in the northern hemisphere, and under *Wahlenbergia* plants found south of the Equator.

Nearly all species of *Edraianthus* are native to the Balkans. They bear violet to purple flowers, and all that I have raised have basal leaves more or less linear. I understand that rarely an albino form is found. Some species are little more than two inches high, and probably none of them exceeds seven inches.

As Farrer says, "Synonyms have been recklessly multiplied," probably because of slight botanical differences. Again quoting Farrer, "They are bright and useful, and quite easy in any deep light soil and a sunny position." In fact, for many years I have had a plant in my garden, *E. dalmaticus*, planted in a sunny position, and placed in sloping ground between rocks. I should judge that many of them would thrive even in a rock wall.

For taxonomic purposes, the genus may be divided into two groups (1) those that have one terminal flower to a stem (2) those that have clusters of terminal flowers.

Included in the first group are *E. serpyllifolius*, *E. pumilio*, and *E. dinaricus*, all of which are attractive plants. *E. serpyllifolius* I have never raised, although I have seen pictures of its. Farrer's statement that "it stands very high on the



*Edraianthus graminifolius* flowering in Cincinnati

list of the six most indispensables" raises in me the hope that some day I may be able to secure it. Pumilio has also received high praise. As its name implies, it is a very dwarf growing plant, almost as low as *Silene acaulis*. This plant I have had for two years, but as yet it has declined to bloom. It has numerous tiny stems rising from the base, with the thinnest imaginable short grassy leaves. I have seen a picture of the plant in full bloom, with scores of erect violet-purple flowers that almost conceal the leaves.

The second group, those that have capitate or clustered terminal flowers, includes *E. tenuifolius*, *E. graminifolius* and *E. dalmaticus*. Incidentally, *dalmaticus* is occasionally offered by nurserymen under the name *E. caudatus*, which is a synonym. The illustration is taken from Visiani's *Flora Dalmatica*, published in 1848, where it was described as *Campanula caudata*. The three species mentioned I have raised at different times, and all are somewhat similar, although



there are botanical differences. The photograph was taken of a plant which I received under the name of *E. graminifolius*, and it seems to correspond fairly well to the description of that species.

Unless one were a collector of this genus, it would hardly be worth while growing more than three or four species, perhaps among the single flowers *pumilio* and *serpyllifolius*, among the "cluster heads" *dalmaticus* and *graminifolius*. They should not be difficult to raise, although it might be desirable to place a pane of glass over them in winter.

## THE ROUND ROBIN

In an area as vast as continental United States, so many climatic zones and regional vagaries of weather occur, that any statement about the hardiness or cultural requirements of a plant should be understood to apply only to the district in which the particular writer's experience has been gathered. For this reason in the pages of the Bulletin the author's city and state are recorded at the head of each article.

The fact of climatic diversity should not weigh unduly on the mind of any writer, because it is ever present also in the mind of the reader. In discussing a plant few of us know except by hearsay how it will behave a thousand or two thousand or three thousand miles away, and if we did know all the details, setting them down would require an inordinate amount of space.

Regional meetings, where such are practicable, afford an opportunity for the exchange of cultural details of a local nature, supplementing what can be read in the Bulletin and in books of reference. Some of our regional groups however find their members so widely scattered in thinly populated areas, that they resort to the round robin as the best means of communication. A letter is circulated from member to member, each individual contributing out of his personal experience.

Our Western Unit in California has perfected this practise to the point of designating a theme for each round of the letter, not with the idea of limiting the members or preventing neighborly chat or offers of plants to exchange, but to provoke and assemble the expression of knowledge such as gardeners do not know they possess until it is specifically asked for. We are permitted to quote from their recent symposium on *Campanula*.

Discussing reference books, Mrs. Oscar Nelson ventures, "I think Correvon's book is way ahead of Farrer's." This brings a reply from Mrs. Coulter Stewart—"About the merits of Mr. Correvon's and Mr. Farrer's books on rock gardening,

I quite agree as to Correvon's. It is authentic and compact. However, Mr. Farrer being more verbose gives the reader a good picture of where and how plants grow in their native spots, and to me this has a great value. Kingdon Ward in his books does the same thing. I use as many books as I can put my hand on. So often one solves a problem that another one overlooks. However this I know, that one's own experience is the most valuable aid for successful gardening."

Miss Jean Ireland writes, "Campanulas are among my favorite plants and they do well here (Sebastopol, California), *carpatica*, *muralis*, *garganica*, *rotundifolia*. Sartori hasn't bloomed yet. *Isophylla* freezes."

Mrs. Nelson says, "On the whole they are a mighty tractable group that reward us with a multitude of bloom for long periods. I refer of course to the rockery types. Usually conditions that satisfy alpine plants as a class will make the bluebells happy. Just moderately rich soil containing gravel or rock chips, and with good drainage, keeps them healthy. It has been my personal experience that while they respond well to richer soil, some of the abundance and daintiness of the bloom is sacrificed. They seem happiest in crevices or pockets, and a crevice a hundred feet up filled with the tiny blue stars of *Campanula Piperi*, accented by the red stigma, is one of the loveliest sights I have ever beheld."

Mr. Edward K. Balls contributes, "In some ways I feel that the Campanulas show more variation in their requirements under cultivation than most other genera among the alpine plants. If course it is true that drainage is all-important, though there are some members of the genus far less fussy than others. Some certainly require plenty of sun and even some drying out in the summer, whilst others need a good deal of shade. There are those which definitely insist on scree conditions, others almost demand crevices, and some are just open meadow species which will flourish mightily in plain borders or in less particular spots around the rock garden. However each one has to be used on its merits, and it is true too that they will not always respond to what appear to be almost identical positions in different localities."

He also says, "Of the Campanulas which are native in California, I had thought there were but two, but on checking up find at least seven. *C. rotundifolia*, which needs no further comment, and is the most showy of them, is confined to the higher altitudes in northern California, alpine meadows mostly above 5,000 feet. *C. prenanthoides* is probably the best known, widespread northwards and on the west slope of the Sierra Nevada. It is mainly a woodland species found from 800 to 8,000 feet. The bells are made of very narrow, recurved petals, so that they look a little spidery, with the long pistil protruding. The color is variable but never very dark, and on the whole the effect is filmy rather than striking. It would be attractive among ferns and in shaded parts of the rock garden. It doesn't need to be kept damp all the time. We have grown it here, but it does not seem to like the winter in our heavy adobe, very few of the plants surviving after a first season in which they did excellently and produced a profusion of seeds. In nature I have usually seen the plant growing in well drained soil on rather steep slopes.

Next is *C. Scouleri*, more restricted in distribution in northern California, from 1,500 to 5,000 feet. This appears to be considerably less common and prefers deeper shade than *C. prenanthoides*. It is not so tall, and as I have seen it the flowers are white (a good solid white) and rather more full than the other. The root is more wandering, so that the plant habit suggests that of *C. rotundifolia*. I should greatly like to try growing this species.

"The remaining four I will enumerate with a few details culled from botanical manuals . . . *C. exigua* belongs to central California, 2,000 to 4,000 feet . . . It is a dwarf about six inches tall, and seems to be rather small flowered. *C. linnaeifolia* is coastal, growing in swampy places, and from specimens here would appear to be almost a trailing species, flowers pale blue and small. *C. uniflora* (*C. scabrella*), starting in the Scott and Siskiyou Mts., goes up to Alaska and Labrador, as well as Europe and Asia. This seems to be an alpine type about five inches tall, with flowers about a half inch across, which is small in this group."

Mrs. Nelson writes, "Perhaps it is most practical to group Campanulas as to habit and use, and mention a few of the best in each group.

*Erect*

<i>pusilla</i> and <i>pusilla alba</i>	4 to 6 inches
<i>Portenschlagiana</i> ( <i>muralis</i> )	9 inches
<i>rotundifolia</i> var. <i>olympica</i>	5 inches
<i>glomerata acaulis</i>	3 to 6 inches
<i>rotundifolia arctica</i>	very low

*Rosette*

<i>alpina</i>	3 to 8 inches
<i>saxatilis</i>	4 to 6 inches
<i>bellidifolia</i>	3 inches
<i>lasiocarpa</i>	3 to 6 inches
<i>Piperi</i>	2 inches
<i>Waldsteiniana</i>	3 to 5 inches
<i>petrophila</i>	

*Drooping*

<i>carpatica</i>	2 to 10 inches
<i>Raineri</i> (good)	2 to 3 inches
<i>Saxifraga</i>	2 to 4 inches
<i>Elatines</i>	6 inches
<i>Porcharkskyana</i>	8 inches

*Creeping*

<i>Allionii</i> ( <i>rupestris</i> )	3 to 5 inches
<i>pulla</i>	3 to 8 inches
<i>arvatica</i>	2 to 4 inches
<i>uniflora</i>	4 to 6 inches
<i>Piperi</i>	2 inches

Mrs. Campiglia comments from Santa Rosa, California, "I have a number of the Campanulas mentioned. Fanny Senior was a mass of color this summer. *C. isophylla* is now blooming. They are all growing on the east side of my rock pile in full sun, where they have to take it and like it. Most of them seem to like it, perhaps because their roots are cool."

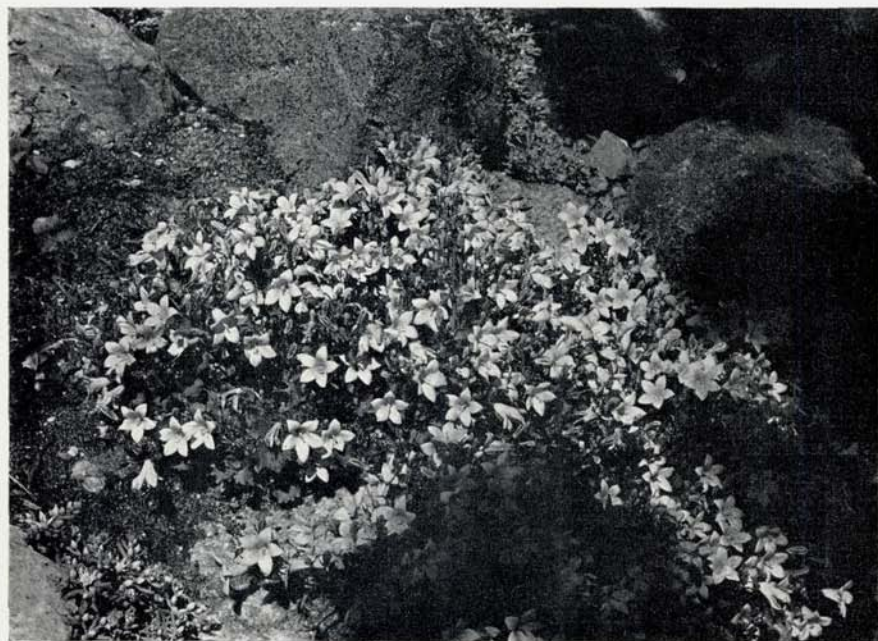
Mrs. Coulter Stewart, San Anselmo, California, describes a number of species: "*C. pilosa*, also known as *C. dasyantha*, one of our favorites, has very large blue bells on six-inch stems in June and July — likes sandy soil in our garden and will take full sun. *C. cochlearifolia* (*C. pusilla*) var. *Miranda* is another favorite with us. Blooming in late July and August, it sends up stems about two inches with lovely flowers of satiny blue over a long period. The foliage is very low, mat-forming, and of a fresh vivid green. Its only drawback is a growth habit too invasive for the small rock garden. *C. Raddeana* from the Caucasus grows to nine inches, with very attractive glossy leaves, heart-shaped and

toothed. The flowers are large, bell-shaped, of rich violet. This species increases rapidly in good friable soil in our garden. *C. Stansfieldi* . . . is an excellent rock garden subject, rambling just a bit in our garden, and forming a colony . . . Fall bloomer."

Says Harry E. Jacobs of San Carlos, California, "Looking over our Campanulas I find we have over 24 varieties suited to the rock garden. These I will not list, as some of you have already mentioned most of them . . . Under the name "Rare and Beautiful Campanulas," Mrs. Henry, a lady enthusiast in Hillsborough here on the peninsula, started to promote these plants in a big way about twenty years ago, but her semi-professional venture didn't last long. One of the oddest bluebells I've ever seen was in her collection. This was what I took to be the hairy-leaved *C. garganica*, but the leaves were covered with soft white hairs about a quarter of an inch long, and the blue stars of *garganica* formed a mound above."

Ray Williams writes from Watsonville, California, "*C. excisa* is a curious little one from the Alps, about one inch tall until in bloom, when it is nearer three inches. *C. Sartori* is in full bloom in the granite scree, east and south exposure, and a little beauty, almost a solid mass of flowers. *C. Kantschavellii* having flowered once already this year, is now sending out new growth with buds from the center of the crown, and is very different from any other Campanula we have seen."

Quoting Mr. Balls again, "*C. Portenschlagiana* is a rampageous grower among the rocks with us, seeming almost indifferent to exposure and soil. I have had it in gravel and full sun, and in the vegetable garden along the borders. It would certainly need a great deal more moisture than natural here in southern California, but it is a profuse bloomer and very easy of propagation.



*Campanula Portenschlagiana* (*C. muralis*)

"*C. garganica* is crevice or scree, and really must have good drainage (and protection from the attentions of slugs and snails). Certainly it takes full sun in the north, but I rather feel that further south California's summer sun is too strong for it, even though the limestones of the Adriatic coast where it originates do get pretty well scorched out during the summer, as I have good reason to know, though I have never seen this species in the wild.

"*C. pusilla* is of course one of my favorites in all its forms. It is really a genuine scree plant, but also I have seen it used as a border edging in just plain good garden soil. It is rampageous where it is happy, but can be pulled out if needs must, to make room for other things. *C. glomerata* is a rather coarse meadow plant, with a rounded head rather like some of the bottle gentians, of deep purple flowers. Its variety *acaulis* should be an improvement on the type. The type I have seen in millions in the high meadows of northeast Turkey, where it shares the turf with the much finer *C. Stevenii*, which is a very delicate and glorified *C. rotundifolia* in habit, with lavender colored bells more slender than those of the common bluebell. *C. Stevenii* is probably not too long lived, but will grow in well drained soil without demanding scree or suchlike fussinesses.

"*C. saxatilis*, *C. bellidifolia*, *C. Aucherli* and *C. tridentata* all belong to one group, and congregate in the Caucasian mountain system. I have seen them all in the wild, mostly in the crevices of rocks or in the upper meadows and screes. There are endless varieties in color and form, and I have yet to discover where one species begins and another ends. *C. Aucherli* is, I think, the finest of them. It is a non-lime species in the wild, and rigid in its crevice-haunting habit, preferring a fairly well baked rock in an area where there is an average of something like 300 inches of rainfall per annum! It has very handsome deep purple bells with a brilliant white circular base. The flowers are usually borne singly on rather fine stems from smallish rosettes of leaves thrust out from the roots all along those crevices. *C. tridentata* is more tufted in habit, usually from higher altitudes and always in scree or at the edge of the rocks. Its flowers are more open bells and of a paler color, often going to lavender-blue, and I have found some very beautiful pure white forms of this species.

"*C. carpatica* and *C. turbinata*, with their multitude of forms and varieties, are handsome where they will do, and all are much beloved by slugs and snails (Not that all other Campanulas are not so, but these are favorite feeding). My experience of them has been that they like a pretty cool place, and are most particularly suited to crevice work, in walls and such places. I rather think that their roots like the confining support of rocks.

## ROCK GARDENING IN THE NORTHWEST

Our active Northwestern Unit at its January meeting discussed the same subject as the Middle Atlantic Unit on almost the same date — Literature of the Rock Garden. Their appended list of books will be of particular interest to members living in the Pacific region.

An extract from the minutes of that meeting will give some idea of the growth of rock gardening enthusiasm in the state of Washington.

"Mrs. Brian O. Mulligan reported correspondence with the Vancouver Island Rock Garden Society concerning a speaker from there for our March meeting, and a visit some time this spring to Victoria Gardens by members of our group. It is hoped to initiate a custom of exchanging speakers and visits with this society. Members considered the suggestion that at least part of our meetings be held at a central meeting place such as the Clubroom at the University of Washington Arboretum. Thus we could accommodate a large attendance."



## SOME BOOKS ON ROCK GARDENING AND ROCK PLANTS

A. *Books of General Rock Plant Interest*

- Anley, G., "Alpine House Culture for Amateurs", (1938)  
 Arber, E. A. N., "Plant Life in Alpine Switzerland", (1910)  
 Bootham, S., "The Alpine House and Its Plants", (1938)  
 Clay, S., "The Present Day Rock Garden", (1937)  
 Correvon, H., "Rock Garden and Alpine Plants", (1930)  
 Corsar, K. C., "Primulas in the Garden", (1948)  
 Edwards, A., "Rock Gardens", (1929 and later editions)  
 Farrer, R., "Alpines and Bog Plants", (1908)  
 " " "English Rock Garden", (1919; latest reprint 1948)  
 " " "My Rock Garden", (1907 and later editions)  
 Fisher, F. H. (Editor), "The Scree Garden", (1933)  
 Hills, L. D., "Miniature Rock Gardening", (1946)  
 " " "The Propagation of Alpine Plants", (1950)  
 Hornibrook, M., "Dwarf and Slow-Growing Conifers", (2nd edition, 1938)  
 Johnson, A. T., "The Hardy Heaths", (1928)  
 Kew, Royal Botanic Gardens, "Hand List of Rock Garden Plants",  
 (1934)  
 Laing, R. M. & Blackwell, E. W., "Plants of New Zealand",  
 (3rd edition 1927)  
 Malby, R., "The Story of My Rock Garden", ( )  
 Mansfield, T. C., "Alpines in Color and Cultivation", (1942)  
 McWatt, J., "Primulas of Europe", (1923)  
 Meyer, F. W., "Rock and Water Gardens", (1910)  
 Royal Horticultural Society, "Species of Rhododendron", (1939; 2nd  
 edition 1947)  
 " " "Rhododendron Handbook", (1947)  
 Stoker, F., "Shrubs for the Rock Garden", (1934)  
 Symons-Jeune, B. H., "Natural Rock Gardening", (1932)  
 Ward, F. K., "Commonsense Rock Gardening", (1948)  
 Wilkie, D., "Gentians", (1936, new edition 1950)  
 Vareschi, V. and Krause, E., "Mountains in Flower", (1940)  
 "Bulletin of the American Rock Garden Society"  
 "Quarterly Bulletin of Alpine Garden Society", (England), (1930  
 onwards)

B. *Books on Native Plants*

- Abrams, L., "Illustrated Flora of Pacific States", Vols. I & II,  
 (1940 & 1944)  
 Brockman, C. F., "Flora of Mt. Rainier National Park", (1947)  
 Clements, F. E. & E. S., "Rocky Mountain Flowers", (3rd edition, (1928)  
 Frye, T. C., "Ferns of the Northwest", (1934)

- Gabrielson, I. N., "Western American Alpines", (1932)  
 Haskin, L., "Wild Flowers of the Pacific Coast", (1934)  
 Henry, J. K., "Flora of Southern British Columbia", (1915), ("Supplement" by J. W. Eastham, 1947)  
 Henshaw, J. W., "Mountain Wild Flowers of Canada", (1906)  
 Jones, G. N., "Botanical Survey of the Olympic Peninsula", (1936; reprint 1947)  
 " " "Flowering Plants & Ferns of Mt. Rainier", (1938; reprint 1943)  
 McCully, A., "American Alpines in the Garden", (1931)  
 Peck, M., "Manual of the Higher Plants of Oregon", (1941)  
 Pesman, M. W., "Meet the Natives", (Central Rocky Mountains)  
 Piper, C. V., "Flora of Washington", (1906)  
 Piper, C. V. and Beattie, R. K., "Flora of the Northwest Coast", (1915)  
 Preece, W. H. A., "North American Rock Plants", (1937)  
 Rydberg, R. A., "Flora of the Rocky Mountains and Adjacent Plains", (1922)  
 St. John, H., "Flora of Southeast Washington", (1937)

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