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AMERICAN ROCK GARDEN SOCIETY BULLETIN

Albert M. Sutton, Editor

VOL. 27 January, 1969 No. 1

APPALACHIAN SPRING

LEONARD J. UTTAL, *Roanoke, Va.*

Aaron Copland, the great contemporary American composer, wrote the music to a ballad called Appalachian Spring, which has become a standard in the symphonic repertoire. Primarily derived from folklore, it is inseparable from the unsurpassable native beauty of these gentle mountains.

The title came to my mind because I delve both into music and nature, and this spring has been the most beautiful I have known in Appalachia, so beautiful that the hillsides sing with color and pure natural hospitality. Oh great economists, while you worry about the plight of the people of Appalachia, please spare their beautiful country!

I have moved to Roanoke in southwest Virginia. To the north and west are the famous shales barrens, rich with endemic plants of great beauty and easy culture waiting to be taken into gardening, but too rare to encourage pursuit. To the southwest lie the great Unicoi and Black Ranges, over into North Carolina and Tennessee, where elevations reach their highest in the East. And all around are the gentle mountains, full of lime and sandstone, with the richest woody flora in America, and not short in choice forms. People transplant the peculiar Carolina hemlock to their grounds with success, and it attracts attention because it looks like it can't make up its mind to be a spruce or a hemlock, so double does it appear.

The native *Pieris floribunda* is favored here over the ubiquitous *Pieris japonica,* its cousin. Fortunately the woodcutter has not made great inroads into deep southwest Virginia and the population is rather sparse so it is still fairly easy to get into relatively unspoiled country.

This spring is again too dry, but last year was so wet and cool that there is enough residual moisture to provide the grandest show of wild flowers I have seen in these mountains since I came here thirteen years ago. A couple of days ago I saw where a piney spot had been cleared. There the new shoots of the Pinxter flower, *Rhododendron nudiflorum,* were close to the ground and all over were spurts of *Iris verna.* Imagine the brilliance of that carpet of violet and pink!

Yesterday, I met a Mr. Longwood, a retired gentleman of 72, who lives next to the Dixie Caverns. With no formal education, this man in his sunset years has become interested in growing wild plants. His instinct for rock gar-

dening perhaps suggests gentle counsel, while his successes shame the sophisticate. What did I see in his garden but the peculiar leather flower of the shale barrens, *Clematis albicoma,* which grows only in a few counties along the Virginia-West Virginia border. The flowers are nodding, fuzzy, white urns which later turn into heads of bewhiskered, white-tailed achenes. Though it is no brilliant plant, its beauty lies in its subdued graciousness. I have seen it but twice before in cultivation in this area. Another, even rarer endemic clematis of this area, is *C. viticaulis,* whose urns are purple, and are produced all season. Both are easy to grow and equally desirable in rock or woodsy gardens, but how does one promote their culture without encouraging the reduction of the native stock?

This is a country favored with phlox. It is the home of the mountain pink, *Phlox subulata,* in nature a delicate, lacy plant, much bastardized in the trade. Another ubiquitous phlox is *P. divaricata,* the blue woodland phlox (which also blooms pink and white), a standard in many perennial gardens. The creeping phlox of the Blue Ridge, *P. stolonifera,* is liked by rock gardeners, but it is a little tricky to handle. A rare one is *Phlox buckleyi,* which grows only in a few counties. Its rich pink flowers grow out from tufts of sword-like leaves. *Phlox ovata* is frequently found. It is similar to the previous one, but the leaves are oval-shaped and the flowers larger, and the plant is more common and wide-spread. Sometimes, exceedingly fine specimens can be found in the woods. We could go on with phlox, but then we would be getting into technical differences.

Up on the shale slopes there is *Senecio antennariifolius.* Its name suggests that its leaves are like those of antennarias, that is, they are fuzzy white like several of the western senecios. And like them, it bears brilliant orange heads. Unfortunately, it seems rather short-lived in the garden.

Silene pennsylvanica and Allium cernuum take on white forms in the shale. This shale is dearly loved by birdfoot violets, *Viola pedata,* both the single-colored form and the ones with the two deep colored petals. Often a population goes wild with bizarre color combinations. Speaking of violets, the Appalachians are the home of many sorts, white, yellow, creamy, and purple and blue.

Iris verna has already been mentioned, and perhaps while a prettier plant than *Iris cristata,* the creeping crested iris, it is more difficult and has not become popular in gardens. But *Iris cristata* is a lovely plant, as many rock gardeners know. In the dry rocks there are brilliant arches of orange puccoon, *Lithospermum canescens.* There is just no end of fine plants and I could go on for a long time, but we must give the next writer a chance, must we not?

Nearly a year ago, I disposed of my property near Lynchburg and moved into an apartment. I let my rock garden go with all its plants gathered from far and near, by collection, exchange and purchase. Now it will go to ruin. But I have a botanical job coming up soon and I must remain able to move about as the need arises. For a while my gardening will be in nature, where the plants are. This does not mean that I am no longer a member of the rock gardening fraternity. Far from it. I hope to be in it again more than ever.

AN AMERICAN'S IMPRESSIONS OF NEW ZEALAND

RICHARD W. REDFIELD, *Closter, N. J.*

Plans for a New Zealand trip had been slowly taking shape for several years. My companion on this trip would be, as usual, my brother, Herbert. Finally we decided that the autumn of 1967 would be the target date. First step was a letter to Mrs. John Warren, one of the ARGS New Zealand members who had written a most interesting article on Fiordland National Park in the April, 1966 *Bulletin*. This article told us that the writer's interest in native plants would enable her to give us the advice we were seeking—the best time for our trip, within the limitations prescribed by the necessity for earning a living.

Not only did Mrs. Warren's reply bring the information we were seeking but it brought news of, and subsequently an invitiation to join a weekend conference of the Canterbury Alpine Garden Society in Christchurch. It also brought an invitation from Mrs. Ethel Doyle to take a landrover trip, via ski road, to the alpine areas on Mt. Potts, where some of the high country plants could be seen without the expenditure of time and effort usually required. Needless to say both of these invitations were quickly accepted with pleasure.

Thanks to the miracle of modern transportation, we were able to leave New York on Monday afternoon, October 23, and arrive at Christchurch airport early Wednesday afternoon, October 25. At the airport we were met by Mrs. John Hannan, secretary, and Ernest Archbold, vice president, of the Canterbury Alpine Garden Society, CAGS for short, and escorted to the Archbolds' home for tea. Here we had an opportunity to get acquainted and to experience our first taste of the friendly warmhearted hospitality which was accorded us wherever we traveled in New Zealand.

After a good night's sleep, we felt completely recovered from the long trip and were delighted to accept the suggestion of Mr. and Mrs. Archbold (Gwen and Ernie by this time) for an all-day trip to Arthur's Pass National Park, some 90 miles northwest of Christchurch, and an opportunity to get our first look at the Alpine Country we had come so far to see. Although we knew from our correspondence with Mrs. Warren that our visit would be too early for us to see the high alpines at their best, we had high hopes that a few early blooms might be found. Sure enough, as we passed a somewhat boggy area, well up in the pass, we caught a glimpse of white. A closer look provided our first view of the Great Mountain Buttercup, *Ranunculus lyallii,* just opening its first flowers in a long blooming season. A little later we were to see this magnificent plant in all its glory at Mt. Cook. We saw many other new and interesting plants, including the beautiful silvery leaved *Celmisia coriacea,* nearly as large as a yucca. Only one other native was in bloom that day, *Ourisia macrophylla,* with sprays of delicately beautiful white flowers.

On the next day, Friday, our hosts arranged a visit to Ilam, formerly the private estate of the late Edgar Stead, now owned by Canterbury University. Here, in this beautiful setting, Mr. Stead carried on his hobby of

breeding rhododendrons and azaleas for many years. Very few of his rhododendrons were named, but the Ilam azaleas have found their way into various parts of the world, including the United States, and the work is still being carried on. They were in full bloom and the display was magnificent. We were also very much interested to find the Nearing propagating frame in use.

The conference of the CAGS opened that evening with a meeting at which plans for the weekend were explained in detail by Mr. and Mrs. John Hannan, president and secretary respectively. This was followed by an interesting panel discussion and finally, a pleasant social time and an opportunity to meet many of the members.

The next day, Saturday, was devoted to garden visits, seven in all, plus one alpine plant nursery. All of the gardens, some large and some small, were in beautiful condition, full of interesting plants, some familiar and many unfamiliar. Of particular interest were the beautiful specimens of Western American natives; lewisias, *Iris innominata, Phlox adsurgens,* dodecatheons and others. The small gardens are really an education. Some of these were no more than one-eighth of an acre, including the house, with no natural slope. Yet, by utilizing practically every inch of ground, the owners have managed to create well-designed rock gardens which blend with the houses and provide attractive settings for an astonishing variety of plants. Of the gardens visited, two were owned by members of the ARGS; Mr. Ronald H. Jameson and Mrs. F. Shaw.

On Saturday evening, we were privileged to hear Mr. L. W. McCaskill lecture on "Conservation of Alpine Country in New Zealand and Abroad." Mr. McCaskill is a dedicated conservationist and a talented speaker, and presented his message in a most interesting and informative manner. The slides which he used to illustrate his lecture, some of them of our own national parks, were excellent.

Sunday was field trip day. Two busloads of CAGS members, better than eighty in all, ranging in ages from the early twenties to the early eighties, made the trip to Jack's Pass. Here, with very little effort, we were able to see a great many of New Zealand's amazing natives. Again, not too many of the plants were in bloom at this early date, but we did find *Rauolia grandiflora,* a lovely mat-forming composite; *Pimelea prostrata,* commonly called New Zealand Daphne, and *Hebe raoulii,* with lavender flowers, in bloom. The great silvery rosettes of *Celmisia coriacea* were very prominent here and we regretted that we would be unable to stay in New Zealand long enough to see these beautiful mountain daisies in bloom.

Monday was the final day of the conference and many of those in attendance regretfully took their leave and returned to their jobs. One busload, however, was able to make the trip to Ashburton to visit two additional gardens. This time, since we were to stay with Mrs. Doyle, we followed the bus in our own car. The first garden visited, that of Mr. and Mrs. Harry Childs, was another of the small, beautifully designed rock gardens that had so taken our fancy in Christchurch. Once again, we were delighted with the great variety of choice and interesting plants that these truly garden-minded people were able to grow in a limited area.

Mt. Potts and Clearwater Lake. Mr. Richard W. Redfield

The final garden on the tour, that of Mr. and Mrs. W. Logan Doyle, was quite a different matter. This is a country garden with plenty of room to spread out, and Mrs. Doyle has made the most of it. Actually, the Doyles have a working sheep ranch, or run, but Mrs. Doyle also had an intense interest in gardening and along with it a great deal of skill and energy. The result is a beautifully landscaped area surrounding the house with several rock gardens worked into the design. Again, there was little or no natural slope to begin with, but Mrs. Doyle has raised her rock gardens just enough to provide the needed drainage, etc., but not enough to create an artificial appearance. The largest rock garden is constructed on a pile of earth that was excavated from the swimming pool. Here there were masses of phlox, lithospermum, *Gentiana acaulis,* mossy saxifrages, and *Iris innominata,* which looked as happy as it does in its own native habitat in the Siskiyou Mountains. At the edge of the pool and along the little stream which led from the pool there were beautifully grown candelabra primroses. The other main rock garden area extends out from a corner of the house. This garden provides a happy home for lewisias, campanulas, potentillas and many others, including a good variety of New Zealand natives. There were also a number of trough gardens, providing homes for numerous tiny treasures, including a very colorful and attractive plant that is used considerably in New Zealand, the South African Rhodohypoxis.

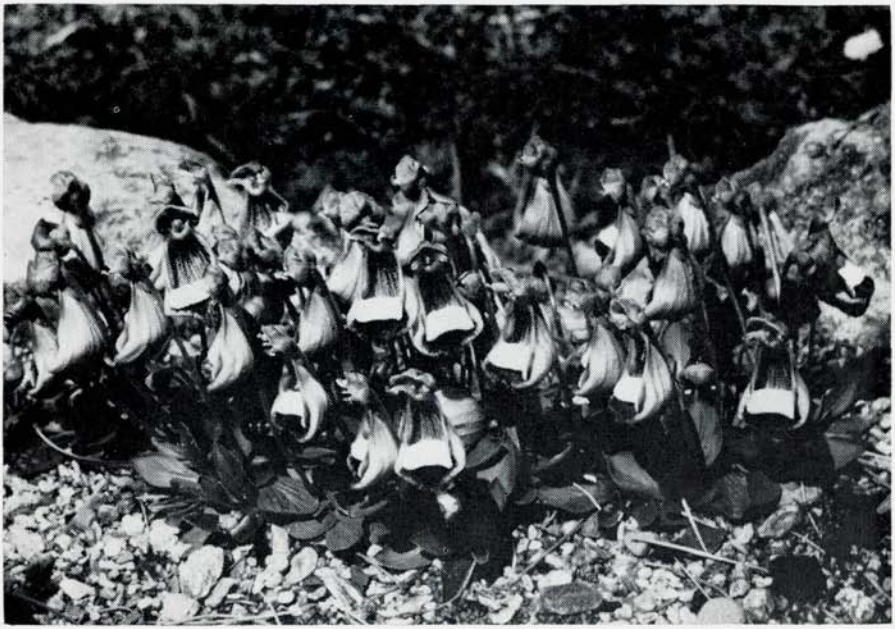
That evening in company with Mrs. Doyle and Mrs. Warren, we drove to Clearwater Lake, which was to be the base for our trip by landrover up Mt. Potts. We awakened the next morning to the disappointing sound of rain on the roof. However, after a good hearty breakfast, we decided that, provided the driver of the landrover was agreeable, we would attempt the trip up

the mountain. Accordingly, we drove to Erewhon Station at the end of the road, after fording several somewhat rain-swollen streams, to pick up the landrover and driver, an engaging lad of about 18 years. The road (question mark) proved no place for the fainthearted, but the car and driver were equal to the task and we met no real problems until nearly at the top. Here, a slide had blocked the road and after one attempt to climb over the slide, we decided that the risk of losing both car and driver was too great, and turned around. With the aid of binoculars we could see some of the New Zealand vegetable sheep, *Raoulia eximia,* well up on the cliffs above the road. Despite the fact that it was now snowing rather heavily, we decided to attempt the scramble up the steep scree to the rocky cliffs for a close look at the vegetable sheep. After a short but strenuous climb, we reached our destination and had our first look at these remarkable plants.

The largest of the plants within reach was about three feet by one and one-half feet, growing on a vertical rock face. Although the snow was still falling, the pale silvery-green surface of the plant permitted us to take some interesting photographs. One, in particular shows Mrs. Doyle collecting seed from the raoulia while standing on a slippery ledge about two feet wide, with a nearly vertical drop of about a thousand feet below her. On the way down we searched the scree, under Mrs. Doyle's direction, for one of the intriguing scree plants, *Haastia sinclairii.* This plant is difficult to find in the loose rock in which it grows since the leaves are almost the same color as the rock. Finally, we were successful in locating a few plants. One other plant occupied Mrs. Doyle's attention on the scree, *Ranunculus haastii,* but this one was just beginning to show its new leaves above ground. By this time we were pretty thoroughly chilled and decided to return to the cabin. On the way back we made two stops, the first in pasture land to see the silvery-gray mats of *Celmisia sessiliflora,* and a tiny green orchid, *Pterostylis mutica.* The other stop was beside the river. Here, on the wide gravel flats, we found fine specimens of the raoulias known as scabweeds; bright green *R. haastii* and silvery *R. lutescens;* the comparatively rare, buff-colored *Myosotis uniflora; Pimelea prostrata;* a tiny prostrate coprosma and other new and interesting plants.

The next day dawned bright, clear, and cold. This time we started up the ski road early and were able to drive over the slide to the end of the road. From here it was a comparatively short climb to the upper slopes. Although fresh snow had covered many of the mat-forming plants, we were able to find such plants as the South Island Edelweiss, *Leucogenes grandiceps, Pygmaea pulvinaris, Celmisia sessiliflora, Phyllachne* sp. and *Donata* sp., and others, although none of them were blooming as yet. The only plant in bloom was tiny *Caltha obtusa,* with comparatively large, creamy-white flowers appearing to rest on the ground, surrounded by melting snow.

The next morning we reluctantly took our leave of the Doyles and headed for Mt. Cook National Park. First stop that day was in Fairlie to visit the gardens of Mrs. Fraser and her daughter, Mrs. Pringle, whom we had met at the weekend conference in Christchurch. Mrs. Fraser's was an old garden, with an astonishing variety of interesting plants. Mrs. Pringle, in a new garden was concentrating on native plants. That night we stayed at Lake



Calceolaria darwinii in garden of Mrs. John Warren, Dunedin. Mr. Richard W. Redfield

Tekapo, where Mrs. Warren had arranged for us to visit, on the following morning, the garden of A. W. Anderson, reputed to be one of the finest native plant gardens in the country. Here, on the edge of the mountain country, Mr. Anderson has assembled a remarkable collection of native plants and created an attractive, naturalistic setting where the natives thrive. Mr. and Mrs. Anderson had driven the 65 miles from their home in Timaru in order to be on hand to greet us and show us the garden. Altogether, this was a thoroughly delightful morning, definitely one of the highlights of our trip. We also had the pleasure of meeting Mr. and Mrs. Bob Barnett, of Timaru at the Andersons'. Mrs. Barnett has been a member of the ARGS for some time.

Next stop on our itinerary was The Hermitage in Mt. Cook National Park. Here, for one week, we spent our days wandering through some of the most spectacular mountain scenery in the world, and our evenings in the luxurious surroundings of The Hermitage. Much to our delight the Great Mountain Buttercup, *Ranunculus lyallii,* was in full bloom. The huge shiny leaves and glistening, snowy white flowers of this species combine to make a truly spectacular show. New Zealanders are justly proud of the "Mt. Cook Lily." In moist crevices on the cliffs along the Hooker River, we found small and delicate *Ourisia caespitosa* in bloom. One of our daily hikes led us up the trail to Red Lakes on Mt. Sebastopol. Fresh snow and rain had raised the level of these little mountain tarns and the ubiquitous little yellow buttercup, *Ranunculus lappaceus* could be seen blooming under the ice. On the rocky eminences of Mt. Sebastopol, high above the valley, we again encountered the vegetable sheep, *Raoulia eximia.* Another of our daily trips took

Native plant garden of Mr. A. W. Anderson at Lake Tekapo.

Mr. Richard W. Redfield

us up the Tasman Valley. Here, on the banks of Blue Stream, a beautiful mountain stream, we found one of the wild Spaniards, *Aciphylla aurea,* a plant which superficially resembles the yucca, with very sharp, sword-like leaves and a tall spike of odd yellowish flowers. On the wide gravel flats of the Tasman River we again found the scabweeds, *Raoulia haastii* and *R. lutescens,* together with the lovely little *Myosotis uniflora.*

Leaving Mt. Cook, we headed south for Dunedin and a visit with the Warrens. Mrs. Warren combines her interest in alpines with an intense interest in rhododendrons and the result is a garden full of a great variety of these beautiful plants. The first thing to catch my eye was a magnificent specimen of *Calceolaria darwinii,* with 56 flowers in bloom. Also in evidence were excellent plants of some Western American natives; *Phlox adsurgens, Iris innominata,* and *Dodecatheon* species.

We had arrived in Dunedin on Friday evening, and on Saturday and Sunday Mr. and Mrs. Warren drove us out into the hill country around Dunedin. Although it was too early in the season to see many of the native plants in bloom, we did find *Celmisia hookeri, Bulbinella hookeri,* a liliaceous plant with spikes of yellow flowers, and one of the native orchids, *Pterostylis* sp. The next three days were spent in visiting gardens in Dunedin and the surrounding area in company with Mrs. Warren. The Dunedin Botanic Garden occupied one morning. This garden has an excellent collection of rhododendrons, with magnificent, mature plants of *R.* 'Cynthia', 'Mother of Pearl', 'Pink Pearl' and others. Although the weather in mid-November was rather cold and windy, the year-round climate in Dunedin permits the growth of many species and varieties which will not survive the climate in Eastern United States. We were also privileged to visit a number of excellent private gardens, each with its own distinctive character and interest.

On Thursday, we, again reluctantly, said goodby to the Warren family and headed westward for Fiordland National Park and Milford Sound. The average annual rainfall in this area is near 300 inches and consequently we did not anticipate sunny weather. Forest growth, however, is luxuriant, with wonderful stands of virgin native trees, tree ferns, and many interesting air plants, including several species of orchids. The lower Hollyford Valley, in particular, provided some of the most magnificent scenery of the entire trip with beautiful rain forest growth and spectacular waterfalls dropping a thousand feet and more from the sides of the mountain. Along the road approaching the Homer Tunnel from the east, we found beautiful plants of *Ourisia caespitosa* in bloom in moist crevices of the rocks. *Celmisia hookeri* was just coming into bloom. Unfortunately, the weather did not permit us to do any extensive walking in this area. Milford Sound, itself, is beautiful, with Mitre Peak rising some 5900 feet from the waters of the sound.

While at Fiordland we received the first news of the snowstorm which had hit the eastern part of the island. The worst storm in living memory had spilled four feet of snow on the Mt. Cook area, completely burying all the blooming plants and marooning the hotel for many hours. Good fortune was still with us since we had experienced only a comparatively light rainfall.

After leaving Fiordland, we headed up the west coast toward the Fox and Franz Joseph Glaciers in Westland National Park. Here again, good

fortune followed us. We enjoyed bright, sunny weather for the entire trip, with wonderful views of the ocean on one side and snow-capped mountains on the other. At Fox Glacier we found one of the best of all the hebes in bloom, *Hebe macrantha,* an attractive small shrub with comparatively large individual flowers. Along the roadsides we also found another *Ourisia* species, *O. macrocarpa,* very similar to *O. macrophylla,* but with smooth rather than hairy leaves; mat-forming *Pratia angulata* and *Mabus radicans.*

From Franz Joseph we continued up the coast, intending to return to Christchurch through Arthur's Pass. In a little roadside bog we found a sundew, *Drosera* sp., very similar to our own native *Drosera rotundifolia,* and a two-toned, violet-colored bladderwort, *Utricularia monanthos,* one of the very few brightly-colored native flowers we had seen.

We had hoped to spend some time exploring for plants in the Arthur's Pass area, but the weather was uncooperative and, in fact, the plants seemed to have advanced very little in the month that had passed since our first visit. The heavy snowfall had apparently held the plants back, although it had disappeared almost entirely from the roadsides. We did find the beautiful native *Clematis paniculata* in full bloom in the Otira Gorge.

In Christchurch, that evening, we had a final pleasant gathering with Mr. and Mrs. Archbold and Mr. and Mrs. Hannan. Then, next morning, we boarded the plane for Auckland. Here, we rented a car and drove south to Rotorua, one of the thermal areas on the North Island, for one final day of exploration. At Rotorua the season was farther advanced and we found one of the blue New Zealand orchids, *Thelimytra* sp. in bloom. Unfortunately, our vacation time was now over and so the North Island must remain to be explored on a future visit.

Altogether this was a completely satisfying trip. We feel that our contacts through the ARGS members enabled us to see New Zealand in a way that would not be possible through the usual tourist channels. Our only regret is that we could not stay for the full season, and we hope to return some day when that will be possible.

GERBERA NIVEA—Who has had experience with this plant and will tell Mr. Paul J. Buckman about it? Mr. Buckman, whose address is Box 217, Buckingham, Pa. 18912, writes, "From the plant sale held in Longwood Gardens in 1967, I purchased a plant of *Gerbera nivea* (at least that is what it was labeled). This plant has thrived and survived two severe winters, reseeded abundantly and produced flower buds prolifically despite the fact that it has never produced even the resemblance of a petal on any of the ten plants remaining undisturbed. The closed buds remain silvery-green for a few days and then slowly lose their pubescent characteristic, yellowing, and eventually dying . . . but never a petal." Can someone help Mr. Buckman?

CONRADINA VERTICILLATA—Elsewhere in this issue Dr. Wherry tells of *Conradina verticillata* which he indicates may be difficult to obtain from nurserymen. However, should any member desire to try this plant in his garden, a letter to the editor will elicit information concerning a new cash and carry nursery in the East whose proprietor has expressed interest in the propagation of this and other native plants that are notably difficult to obtain.

RHODODENDRONS FOR THE ROCK GARDEN

ESTHER BERRY, *Aberdeen, Washington*

INTRODUCTION — In May, the high season for the genus *Rhododendron*, the Northwest Region of the American Rock Garden Society had the privilege of listening to a talk, illustrated with slides, by our member, Mrs. Robert Berry. Esther Berry's disclaimer of any particular knowledge of rhododendrons must be strongly diluted by the evidence of her many years of careful observation of this wonderful genus, her intensive study, and her long experience as a grower of a very wide range of *Rhododendron* species. We asked her help in the preparation of a written report of her program and she generously offered to write the report herself. Her report follows:

D. M.

There are so many dwarf rhododendrons that it would be impossible to cover them all. This paper is, therefore, limited to the dwarf species. There are, of course, many fine hybrids that are well suited to the rock garden, and may be easier of cultivation. For the small rock garden, only the very miniature or creeping plants are in scale, but sometimes it may be desirable to use some of the larger kinds, and so these, too, have been included. Most of the species are so slow-growing that they will attain no more than half their ultimate size in ten years, so some that may in time become too large can be useful in the rock garden for some time before being moved to the border.

In growing the species it is important to remember that they are extremely variable. Careful selection is necessary to find the very dwarf forms of good habit with fine-colored flowers. There is considerable variation in hardiness, too.

Most of the dwarfs are alpines and they appreciate sharp drainage, but they must not be allowed to become dry. Continuous moisture and a cool root run are necessary to their welfare. Nor will they perform well in poor soil; good peaty soil, enriched with leaf mould and mixed with sand, should be about right. A good mulch of coarse peat will be beneficial. Those requiring some protection from the sun will do better with an open north exposure, rather than shade which may cause them to become drawn. Suggestions relative to exposure in the following tabulation apply largely to the Pacific Northwest; in areas where excessive heat is a factor, more protection may be necessary. The species Rhododendrons considered reliable performers of exceptional merit are indicated by an asterisk (*) and the larger ones and the tender ones by (†). To every suggestion, I must always add, "I think."

ANTHOPOGON SERIES —	Small shrubs with flowers in small daphne-like terminal heads. Not quite as hardy as other dwarf species. Light shade in hot weather areas.
R. anthopogon	1½ ft. Lvs. 1-1½ in. Flrs. white, pink in April. Hardy to —5. Var. *haemonium* has yellow flowers.

R. cephalanthum — 2-4 ft. Lvs. ½-1¼ in. Flrs. white, pink in April. Hardy to zero. Var. *crebreflorum* — K.W. dwarf form, less than 6 in. Pink flrs.

* *R. sargentianum* — 2 ft. very slow, wide-spreading. Lvs. ⅓ to ⅔ in. Flrs. primrose yellow to pure white. Hardy to —5. 'Maricee' A.E. — white form.

* *R. trichostomum* — 2-4 ft. Lvs. ¾ to 1¼ in. Flrs. white to clear rose in May and June. *Ledoides, radinum* and *sphaeranthum* are varietal forms.

BOOTHII SERIES — Includes some fine dwarfs with beautiful flowers. Unfortunately all are rather tender.

R. leucaspis — 1-2 ft. Lvs. 1½ to 2¾ in. Flrs. white in Feb.-March. Hardy to zero. Dwarf form is compact and rarely over 6 in. Light shade in protected location. Sprawls in too much shade.

† *R. megeratum* — 1-2 ft. prostrate, compact mound. Lvs. ½ to 1½ in. Flrs. bright yellow in March-April. Hardy to +10. Light shade.

† *R. sulfureum* — 2-4 ft. Lvs. 1½ to 3 in. Flrs. sulfur yellow in April. Too tender for all but the most sheltered gardens.

* *R. tephropeplum* — 2-6 ft. Lvs. 1½ to 2 in. Flrs. blush-white, rich pink, or rarely crushed strawberry color in April-May. Hardy to +10. K.W. 20844 is a dwarf form with larger flrs., more tender.

CAMPYLOGYNUM SERIES — A monotypic series with several forms. All have thimble-shaped flrs. with a plum-like bloom. They need light shade, good drainage and a cool root run. Hardy to zero.

R. campylogynum — 2 in. to 1½ ft. Lvs. ½ to 1 in. Flrs. salmon pink, rose-purple, black-purple in May.

* var. *charopoeum* — 'Patricia' Flrs. purple. Lvs. 1 in.

* v. *myrtilloides* — Very dwarf. Flrs. plum-purple. Lvs. ¾ in.

† *cremastum* — 2 ft. Lvs. 1½ in. Flrs. rose-purple, nearly red.

CAMTSCHATICUM SERIES — Deciduous undershrub, inches high, flowering on new wood. Spreads by underground stems.

* *R. camtschaticum* — 6 in. Lvs. ¾ to 2 in. Flrs. rose-purple in May. Hardy to —25. Must have full exposure and sharp drainage.

FERRUGINEUM SERIES — The whole series is very hardy, slow-growing, and flowers young. Ultimately too large for most rock gardens. Need perfect drainage.

† *R. ferrugineum* — 3-4 ft. Lvs. 1 to 1¾ in. Flrs. rosy-crimson in June. Hardy to —15.

† *R. hirsutum* — Near to *R. ferrugineum*. More compact, tolerates alkaline soil. Hardy to —5.

† *R. kotschyi* — 1½ to 2 ft. Lvs. ½ in. Flrs. rosy-pink in May-July. Hardy to —15. Likes shade, resents root disturbance.

GLAUCOPHYLLUM SERIES —

† *R. brachyanthum* — 4-5 ft. Lvs. 1½ to 2½ in. Flrs. yellow in June. Hardy to —5. New growth partially conceals the flowers. Var. *hypolepidotum* is a superior form.

R. charitopes — 4 ft. dense shrub. Lvs. 1 to 2½ in. Flrs. pink in April-May. Hardy to zero.

R. glaucophyllum — 1-4 ft. Lvs. 1 to 3 in. Flrs. rose, pinkish-purple in May. Hardy to —10. Var. *luteiflorum*—Flrs. yellow, less hardy than type.

R. tsangpoense — 1 to 3 ft. Lvs. ¾ to 1½ in. Flrs. pink to violet in May. Hardy to +5.

R. shweliense — 2½ ft. Lvs. 2 in. Flrs. pink-tinged yellow in May. Hardy to zero.

LAPPONICUM SPECIES — All members of this series are hardy to —5 or lower. They require full exposure in cool climates and only light shade in warmer areas. They may need occasional pruning to stop twiggy growth.

* *R. chryseum* — 1-2 ft. Lvs. ½ in. Flrs. cream to pale yellow. April.

R. drumonium — 2 ft. Lvs. ¼ in. Flrs. blue-purple, mauve in April.

R. edgarianum — 3 ft. Lvs. ⅓ in. Flrs. blue-purple in May-June.

**R. fastigiatum* — 10 in. to 2 ft. Lvs. ½ in. Flrs. blue-purple in April-May.

R. flavidum — 2 ft. Lvs. ½ in. Flrs. pale yellow in April. Resents root disturbance.

† *R. glomerulatum* — 3 ft. Lvs. ¾ in. Flrs. light purple in April-May.

† *R. hippophaeoides* — 3 ft. Lvs. ¼ in. Flrs. lt. blue to purple in March-April.

* *R. impeditum* — 1½ ft. Lvs. ½ in. Flrs. mauve, dark blue in April-May. Form with glaucous leaves especially desirable.

† *R. intricatum* — 3 ft. Lvs. ⅓ in. Flrs. lavender-blue in April.

* *R. microleucum* — 1½ ft. Lvs. ⅔ in. Flrs. pure white in April.

R. rupicola — 2 ft. Lvs. ½ in. Flrs. plum-purple in April-May.

† *R. russatum* — 2-4 ft. Lvs. ¾ to 1½ in. Flrs. deep purple in April-May. Foliage very poor in winter.

* *R. scintillans* — 2-3 ft. Lvs. ½ in. Flrs. blue to purple in April-May. Perhaps the best blue in the series.

R. tapetiforme — 2 ft. Lvs. ½ in. Flrs. pink, rose to blue-purple in April.

R. stictophyllum — 2 ft. Lvs. ¼ in. Flrs. rose, purple, mauve in April.

LEPIDOTUM SERIES — Highly variable plants in size, color and hardiness. Larger forms hardy to zero; smaller forms more tender.

R. lepidotum — 1-5 ft. Lvs. ½ to 1½ in. Flrs. pink, purple, crimson, yellow, white in June. Var. *elaeagnoides*—Lvs. ½ to ⅝ in. Flrs. yellow. Var. *obovatum*—Flrs. purple, crimson. Shy flowering.

R. loundesii	1 ft. Lvs. 1 in. deciduous. Flrs. pale yellow in June-July.
MADDENII SERIES —	Open-growing shrubs with fine flowers. All listed are rated hardy to +10. Early flowers will be frosted many years. Very worthwhile in mild gardens. Light shade in the West.
† *R. ciliatum*	4-5 ft. Lvs. 2 to 3 in. Flrs. white or tinged pink in March-April.
† *R. valentinianum*	1½-3 ft. Lvs. 1½ in. Flrs. bright butter yellow in April.
MOUPINENSE SERIES —	
† *R. moupinense*	2-3 ft. Lvs. 1½ in. Flrs. white, rose in Feb.-March. Fragrant.
NERIIFLORUM SERIES —	Very slow-growing shrubs with leathery, dark green foliage, some with handsome indumentum. Most forms in cultivation have red, waxy flowers. All need some shade and they are hardy to −5.
R. chamae-thomsonii	3 ft. Lvs. 1½ to 3½ in. Flrs. shades of red in March-April.
* *R. forrestii*	Var. *repens*—Lvs. 1 in. Flrs. deep crimson in April-May. Prostrate creeping plant, sometimes difficult to flower. Var. *tumescens*—1 ft. More dome-shaped with outer branches creeping. Larger leaves. Some forms with pink or reddish-purple flowers.
† *R. haematodes*	3-4 ft. Lvs. 1½ to 3½ in. densely felted. Flrs. scarlet-crimson in May. Varies greatly. Some forms to 10 ft. Needs full shade. Hardy to −5.
† *R. sanguineum*	1-3 ft. Lvs. 1 to 2½ in. Flrs. black-crimson. Hardy to +5. Subsp. *didymum*—Color so dark, it needs backlighting.
PONTICUM SERIES —	
R. chrysanthum	1 ft. Lvs. up to 3 in. Flrs. pale yellow in late May. Prostrate or semi-prostrate. Hardy to −5. Needs shade and does not tolerate drought.
* *R. yakusimanum*	3-4 ft. Lvs. 3 in. heavily felted. Flrs. pink to white in May. Hardy to −15. The dwarf form is smaller in all its parts.
SALUENENSE SERIES —	A very distinct series of dwarf plants. Often prostrate, all with tiny leaves. The flowers range from pink to reddish-purple in color.
* *R. calostrotum*	2 ft. Gray-green lvs. 1 in. Flrs. rosy-purple or claret in May. Dwarf forms have compact growth habit. Hardy to −5.

R. chameunum — 1 ft. Lvs. 1 in. Flrs. purple-rose in May-June. Dislikes drought. Hardy to —5.

R. fragariflorum — 1 ft. Lvs. ½ in. Flrs. pinkish-purple or crushed strawberry in May-June. Hardy to zero.

* *R. keleticum* — Prostrate. Lvs. 1 in. Flrs. purple-crimson in June. Hardy to —10. Rock #58 is a superior form with flrs. two in. wide.

R. nitens — 1½ ft. erect habit. Lvs. ½ to 1 in. Flrs. pinkish-rose to pinkish-purple. Hardy to —10. Light shade in the West.

R. prostratum — Prostrate. Lvs. ¾ in. Flrs. deep pink flushed violet in April. Hardy to zero. Light shade.

R. radicans — Prostrate. Lvs. ¾ in. Flrs. purple in May. Hardy to —5. Won't tolerate drought.

† *R. saluenense* — 4 ft. Lvs. 1½ in. Flrs. rose-purple in April-May. Hardy to —5. Becomes leggy in too much shade. Wood is very brittle.

TALIENSE SERIES — Roxieanum subseries — Slow-growing and slow to flower, many with fine indumentum. Collector's items, difficult to find.

† *R. bathyphyllum* — 3 ft. Lvs. 3 in. rusty indumentum. Flrs. white, crimson spots in April-May. Hardy to —5. Needs light shade.

† *R. gymnocarpum* — 3 ft. Lvs. 3 in. Fawn indumentum. Flrs. deep crimson in April. Hardy to —5. Some forms flower purple or mauve.

† *R. proteoides* — 3 ft. (6 in. in 10 years) Lvs. ¾ to 2 in. rusty indumentum. Flrs. cream-yellow flushed rose, crimson spots after 15 years. Hardy to +5. Needs full shade.

† *R. roxieanum* — Var. *oreonastes*—1 ft. creeping form. Lvs. 2 in. long, only ¼ in. wide. Flrs. pure white with crimson spots in April-May.

THOMPSONII SERIES —

* *R. williamsianum* — 1-5 ft. Lvs. 1 to 2 in. Flrs. shell pink, rose in April. Hardy to —5. Often difficult to flower. Attractive bronzy young foliage.

TRICHOCLADUM SERIES —

* *R. lepidostylum* — 3 ft. Lvs. 1½ in. Frosty blue-green. Flrs. pale yellow. Hardy to zero. Likes light shade in the West. Slow to bloom. Resents root disturbance.

TRIFLORUM SERIES —

* *R. hanceanum nanum* — 1½ ft. Lvs. 2½ in. Flrs. clear pale yellow. Hardy to +5. Likes light shade.

* *R. keiskei*	1½ ft. Lvs. 1½ in. Flrs. unspotted lemon yellow. Hardy to −15. K. Wada, of Japan reports a "moss-like" *keiskei* of less than 6 in. Light shade in cool areas.
UNIFLORUM SERIES —	Small alpine shrublets.
R. imperator	1 ft. prostrate. Lvs. 1 in. Flrs. pink, rose in May. Needs light shade. Hardy to +5.
R. ludlowii	1 ft. spreading. Lvs. ½ in. Flrs. yellow in April-May. Hardy to zero.
R. patulum	Prostrate to 2 ft. Lvs. ¾ in. Flrs. purple in May. Hardy to zero. Needs light shade.
* *R. pemakoense*	1½ ft. cushion. Lvs. 1¼ in. Flrs. pinkish-purple in March-April. Hardy to zero, but early flowers are often frosted.
**R. pumilum*	1 ft. Lvs. ¾ in. Flrs. pink, rose in May. Hardy to −5. Jack Drake has described the color as "sugar pink."
R. uniflorum	1 ft. cushion. Lvs. 1 in. Flrs. blue-pink in April-May. Hardy to zero.
VIRGATUM SERIES —	Willowy growth habit, axillary flowers. Better for pruning long whips.
* *R. racemosum*	Dwarf forms—2 ft. Lvs. ¾ in. Flrs. soft to bright pink in March-April. Forrest 19404 is a good dwarf with bright pink flowers. Hardy to −5.
† *R. virgatum*	3 ft. upright growth. Lvs. 1¼ to 3 in. Flrs. pink to purplish-pink. April to June. Hardy to +15.

PLANT EXPLORATION ARTICLES—To quote from a letter received from Mr. Roy Davidson, a consistent contributor to the *Bulletin,* "For one, I much enjoy such as the Vasak articles. Furthermore, such stories tell much about plant populations and distributions and, since they are submitted, I feel they should be published for the record. I was much interested to learn that Mr. Vasak found *Iris tigridia* and *Eritrichium rupestre,* two plants I am currently "involved" with in writing. These stories by such as Mr. Vasak will bear much rereading, plant dictionary in hand, long into the future, by all students of plants."

TIARELLA WHERRYI—Dr. Wherry writes as follows: "Where can *Tiarella wherryi* be obtained at present? Doretta Klaber and Rex Murfitt who formerly offered it have gone out of business in the east. A well-known British firm sold a packet of seed so-called to a local nurseryman, but when I went to inspect the plants recently, what they had sent was the utterly different *Tellima grandiflora.*" If you can supply this plant or information concerning where it may be obtained, write to Dr. Edgar T. Wherry, 41 W. Allen's Lane, Philadelphia, Pa. 19119.

CEPHALANTHERA AUSTINAE Heller
PHANTOM ORCHID

LEONARD WILEY, *Portland, Oregon*

(Editor's Note)—Mr. Wiley writes with great delicacy and feeling about this beautiful and almost unknown native of the deep woods of the Pacific Northwest. Following is a chapter devoted to this plant in Mr. Wiley's recent book, *Rare Wild Flowers of North America.* Mr. Wiley has graciously given permission for reprinting it in our *Bulletin.*

The narrow trail led through the deep woods. Suddenly I stopped, for there at my feet was a Phantom Orchid. I gasped with astonishment for I had never expected to find this rare and beautiful plant.

Realizing that the plant would be destroyed because it grew on the trail, I dug it as carefully as I could. The soil was broken rock and loose humus, so that balling the roots was impossible. Although it was planted carefully in a friend's garden, it disappeared the following year after blooming weakly.

One might spend a lifetime in the woods and never see this orchid, *Cephalanthera austinae,* for it is a phantom indeed, one of the rarest of our natives. The entire plant is waxy white, except for a golden throat in the flower.

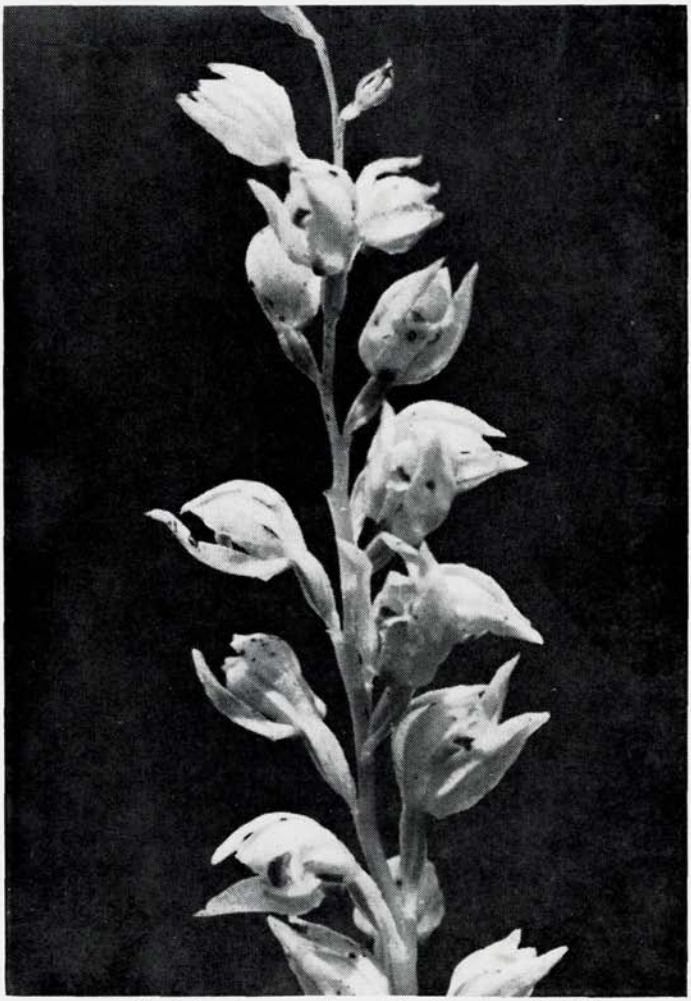
The cold language of botany cannot describe the ineffable beauty of the delicate petals and the graceful flowers. In fact, it cannot be described at all.

It was merely by chance that I stumbled upon it. Although I had never seen it before I recognized it at once from the excellent photograph in Leslie Haskin's *Wild Flowers of the Pacific Coast.* I had looked for it often without any real hope of success, but always with the thought that some day Nature might be kind and lead me, unkowingly, to her diminutive white altar in the deep forest where this lovely orchid is an elusive dweller.

This chance meeting was the peak of my botanical career in the outdoors up to this time. As the years went by, I had asked various wild flower fans and botanists about it, but no one was able to help my painstaking and aimless search.

One day, however, a friend told me his wife had brought home a white flower. It was *all* white, I thought, of course, it must be an Indian Pipe but his lay description did not fit that plant. So I hurried to his home where I saw my second Phantom Orchid in a glass on a window sill. It had been found a short distance from Gresham, Oregon. In a space no larger than half an acre in the shade of a grove of Douglas Fir, to my utter amazement I found 70 by actual count. I spent most of that Sunday morning there photographing and studying them.

The Sunday I located the 70 plants held other surprises. On a hill in a dense forest of second growth Douglas Firs, were growing the Striped Coral Root, the Spotted Coral Root, and the Leafless Wintergreen, and nearly a dozen plants of the Indian Pipe—saprophytes all. Among them, in an area of less than five acres, bringing life and beauty and a marvelous rich-



Cephalanthera austinae—The Phantom Orchid
Mr. Leonard Wiley

ness to the deep shade, I gazed in wonder upon no less than 865 more Phantom Orchids!

The trees have since been logged off. Then a fire raced over the denuded land, leaving no trace of my saprophytic friends. But I shall never forget that quiet Sunday morning of long ago when, on a lonely hill top, I found my Botanical Holy Grail, my New Jerusalem of Flowers.

HISTORY: There are about a dozen species in the genus, found around the world, but this is the only one native to America and it is restricted to the Pacific Northwest. Others are found in Japan, the Caucasus, the Himalayas, temperate Asia, Greece, Mesopotamia, Persia, Sicily, Asia Minor, Europe, and North Africa. It was named *C. austinae* in 1900 by A. A. Heller, 1867-1944. Heller renamed it in 1904 *Eburophyton austinae,* a monotypic western species. But I prefer the older, better known name, much easier to pronounce.

DESCRIPTION: This orchid is entirely lacking in green leaves, which have been reduced to white sheathing scales. It is a true saprophyte, one of several such plants found in the Pacific Northwest. Its perfume is as delicate and rare as the blossom itself. If you are a flower lover, and are fortunate enough to discover this plant, you will never forget it. Usually there are a half dozen or so blossoms upon each stem, although they may number up to 40. The lower blossoms open first, assuring a succession of bloom. They are herbaceous perennials. I dug around one plant with my trowel and found the stump of the previous year's flowering stem. Two inches below the surface of the ground the heavy, fleshy roots spread out and downward for a considerable distance in their search for food. The roots are white, the same color as the stem, and the outside has a thin layer of light brown skin with the white heart showing through. The stems vary in height from six to 20 inches, the shorter ones having fewer blossoms.

As a cut flower it remains fresh fairly well, but the buds do not open. The stems bend toward the light indoors. This is a surprising quality in a plant that is wholly without chlorophyll, and presumably lives entirely independently of light. The flower seems to remember vaguely that, somewhere in its misty past, like all normal plants, it too had green leaves and looked to the sun for nourishment. But when it became a dweller of the deep shade where there was not enough light for survival the Phantom Orchid did the only thing possible under the circumstances. It went to the soil for pre-digested food.

The only plant likely to be confused with it in our territory is the Indian Pipe, but the two are easily distinguished. The Phantom Orchid turns brown when it is dying, while the Indian Pipe becomes almost black. While the Phantom Orchid appears to be snow-white, beside a piece of white paper or cloth it is seen to be slightly cream-colored. The Indian Pipe is pure white. *Cephalanthera* blossoms a full two weeks ahead of Indian Pipe, although both can be seen in flower at the same time as there is an overlap. The Phantom Orchid appears in clumps of two or three occasionally, but usually it is alone. The Indian Pipe, however, flowers in clusters of from two to 150 stems and rarely occurs with only one stem.

RARITY: Extremely rare.

DISTRIBUTION: It is very difficult to establish the exact range of so rare a plant. It favors mountains at low altitudes although it can be found in the valleys all the way from the Olympic Peninsula of extreme northwestern Washington, through Oregon to Mariposa and Monterey Counties in central California and eastward to Idaho. Portland, Oregon is particularly fortunate in that a few of them are growing in the deep shade in the Hoyt Arboretum. There are a few up Oneonta Gorge, about 35 miles east of Portland, if you know where to look.

PROPAGATION: Observations made of several dozen plants after they had matured showed little indication of seed. I found only two that had enlarged ovaries, and of those only one on each plant was swelling. The scarcity of seed may be one of the reasons for the extreme rarity of this plant. There is so little food in each tiny seed, although a great number may be borne in an ovary, that few indeed are able to germinate and produce

mature plants. I do not know of anyone who has succeeded in growing it from seed. But it can be done. Nature can do it and so can we. Perhaps the best suggestion is to broadcast the seeds as soon as they ripen, on a rich, leaf mold soil in deep shade. Wild plants, even when dug with large balls of earth, are almost certain to perish in the garden. It does not seem to make any difference how much thought and care is given them, the results are inevitably the same. It may be that the shock of transplanting is too much for them. Soil conditions do not seem to be a determining factor for most any well drained soil in their native habitat seems to be satisfactory. Some day we may learn the secret of growing this beautiful but difficult orchid.

CULTURE: Unknown. In the wild state it receives no artificial help of any kind, neither extra food nor water. Once established in the garden it should be left alone.

FLOWERING TIME: Mid June and July. It is possible to see it as early as the middle of May but three weeks later will generally find them at their prime.

SYMPOSIUM ON THE AMERICAN ERITRICHIUM

ROY DAVIDSON, *Seattle, Wash.*

". . . Quite content to sit up there from age to age, working out its own destiny . . ." thus Farrer wrote of Eritrichium.[3]

With reports that a plant is difficult or impossible of cultivation come inevitably the challenging views of those who wouldn't agree 'til they've tried . . . and tried . . . and tried. In horticultural literature, Eritrichiums are epitomized as the "classic example of the difficult plant,"[8] and great rushes of words have been both written and spoken, in explanation, and in advice or promise, from "fooling it into thinking it is winter with a blanket of cotton-wool"[8] to a method of growing seedlings, should one be so fortunate as to have seed, "in a flat of slates arranged to resemble a crevice formation."[8]

To best appreciate this lovely subject, as well as to try to fathom its nature, several expeditions, some large, some small, have set forth over the recent years into the depths and onto the heights of the northern Rocky Mountains, and some related eastern ranges. Barr[1] had himself made the pilgrimage and was duly impressed, both by the profusion and the great beauty of *Eritrichium howardii* as it carpeted the plains at the eastern base of the limestone backbone of Montana, as recorded in these pages. Some further observations, experiences, opinions, and admonishments might aid and promote a better understanding of these plants, and a garden-succession of generations of them might allow a strain that is a bit more tenable.

TAXONOMY WITHIN THE GENUS

Any taxonomic discussion of local scope should for clarity consider related subjects and other regions. *Eritrichium* is but one of the often confused genera of the sub-family *Boraginoideae,* an assemblage of long interpretive discourse and revision; the synonymy within the North American members alone indicates elements once component to the genus are currently to be found disposed within no less than seven related genera;

Anchusa, Cryptantha, Cynoglossum, Krynitzkia, Myosotis, Omphalodes, and *Plagiobothyrus,* such an interpretation leaving us, as the "true" Eritrichiums only the genus *Eritrichium,* surely the most beautiful and desirable, albeit the most nearly impossible! Although a nursery list may persist in enticing the collector-gardener with such as *E. wallichii* (=strictum) "form Kashmir"[4] (no aspersions intended; this may well be a first class subject), it has not been a "proper" *Eritrichium* for some years, having been banished as a *Cynoglossom.*

Even following such a strict delimitation, we are confronted with an extensive chronicle of their numbers, all of dense pulvinate-caespitose habit, all clad in furry garb, and all of arctic-alpine disposition. As is usual within this sub-family, a great deal of taxonomic importance has been attached to their fruits, the nutlets sometimes barbed, sometimes smooth, all this of relatively little importance to the gardener though, of course, affecting their distribution in the wild, and recently taken as overrated in significance within the genus. Wight[11] allowed no less than six species in North America, these being, in addition to *E. howardii* (which all workers agree to be the most distinct), *EE. elongatum, splendens, argenteum, aretioides,* and *chamissonis.* In this treatment the nutlets are figured, clearly showing their diversities, some only ridged and quite smooth, others with short spines surmounting the apical ridge, to become, in others, branched and compoundly barbed. Polunin[7] treated four species of the northlands (his range did not encompass that of *E. howardii*), including the exclusively American *E. aretioides,* "variable in leaf and flower and loosely matted to closely pulvinate" from the mountainous areas, and three others; *E. chamissonis* "from situations similar to those of *aretioides,*" to which he gave a range "from Arctic Asia to Alaska and the Yukon"; *E. villosum,* Eurasian, "of sandy seashores, coarser and taller"; and *E. czekanowskii,* Siberian, and of which he remarked, "may belong in an allied genus."

Hitchcock wrote of *Eritrichium,* "About four closely related species of Eurasia and western North America when strictly limited," and allowed two American species, including all except *E. howardii* within *E. nanum,* the type of which is European; his discussion states that plants of the United States constitute the "rather weak" variety *elongatum,* and differ from the European type in being more densely pubescent, the less hairy ones, "notably those of the Wallowa Mts.," scarcely, if at all, different from European counterparts. He further discounts the importance of the seed characters, drawing attention to such polymorphism within the plants of Europe.

Further names encountered in the literature include *E. jankae,* presumed to be an eastern European variant of *E. nanum, EE. latifolium,* and *sericeum,* both said to be Himalayan, and *E. rupestre,* recently recorded within these pages as found in the Gobian Altai of Mongholia by Vasak.[10] Farrer would rest well knowing that the deplored name *tergloviense* for his beloved plant of the Col de Clapier, Angstbord Pass and the ridge of Padon, has fallen into disuse in favor of the prior *E. nanum. E. nipponicum* is likely a *Cynoglossum.*

Although the splitting of hairs might be thought of as the common attitude for the horticulturally minded taxonomist, there seems little reason

to continue so in the case of *Eritrichium,* either to call attention to some garden-worthy variant in the wild, or to some entity that appears to give promise of horticultural superiority, or even "possibility." The reports of greater compactness of some are contradicted by other observers often working in the same areas, and the nomenclature that should give logic only brings confusion in that the defined taxa cannot be plotted to form continuous distributions. Workers are at odds as to what to call the plants of Alaska, for instance, and thus Hitchcock has been the one to conclude that *E. nanum* is polymorphic and widespread. Farrer[3] spoke of every northern mountain range having its Eritrichium in allusion to this polymorphism and the impressive list of species names led to. The qualities of compactness, floriferousness, and to some extent at least, the qualities of the pubescence can be affected by local conditions. Of all the Eritrichiums, only *E. howardii* stands as consistently distinct in morphology and habitat.

ERITRICHIUM HOWARDII — EXCLUSIVELY AMERICAN

Barr[1] gave us his impression of the plains of Montana carpeted as far as the eye could see with this bluest of wildflowers of the prairie. Farrar[3] said of it, "A beautiful dense tuft of narrow, spoon-shaped leaves clothed in short silver hair and with larger brilliant blossoms"; praise indeed, as he was comparing it in his mind's eye to his beloved "King of the Alps," *E. nanum,* and Farrer, it is well known, could scarcely admit a breath of admiration for any American plant. Although this is to be sometimes found on the mountaintops, it is at its best as Barr saw it, down on the basal moraines, at the feet of the mountains, not upon them. Where it is best suited it is literally a solid mass of individual tufts, actually numbering hundreds of thousands, and almost to the exclusion of any other flowering plant, so unique is its adaption to the situation; a deep formation of limestone and clay that is greasy when wet, hard and densely compacted into one mass when dry.

Those who have attempted to grow *E. howardii* in gardens purport to see greater possibilities of success in this species than in *E. nanum,* though only speculative to this time. Charles Thurman, of Spokane, Wash., has attempted it in his garden, also on glacial deposit, though granite-derived. Those who have attempted it in Missoula, Montana, have not been successful. Margaret Williams, of Reno, Nevada, dug plants in bloom, planted them into containers in their native soil, but they died en route home in the heat of summer. "From two sites, both quite rocky, these apparently suffered too much disturbance and the myriad of fine root hairs suffered too much damage," she writes. Mrs. A. C. U. Berry, of Portland, Oregon, despairs of ever succeeding with "the Trickies," as she affectionately terms them; "they strive to succeed but just plain pine away" even in the frame or coldhouse. A similar report came from the late Ted Greig, of Vancouver, B. C.; both these gardens on the humid West Coast.

The greatest degree of success with this species so far appears to have been that of Robert Putnam, of Kirkland, Wash., also in the humid belt, with a plant dug in October. Although Thurman has speculated that these plants should only be moved when the roots were in active growth, fall collecting has proven quite as favorable. This plant was removed from the

shoulder of the road where it had barely escaped devastation of road repairs; this was a plant over a foot in diameter! Of course, it would ordinarily have never been considered as a subject for transplantation except that it was surely doomed where it was as soon as spring brought the workmen back. It was put into a twelve-inch clay pot in its native soil, this set inside a larger pot and kept dry in the coldhouse through the winter. It appeared quite lifeless but with the spring came little sage-green new leaves in every terminal branch, and water was accordingly given. In May, it flowered and some seed was set; at this writing it has gone through its first summer's aestivation in cultivation, has proceeded to appear lifeless again, but is living. No other plant from this same collection survived, having been treated in one of several manners, in various soil mixtures, some over-wintered in a ventilated frame, some put directly into the scree, top dressed heavily with basalt chips. It might be of interest to note here that no white individuals of this species appear to have been noted; they are not unusual within *E. nanum*.

These plains of divine, cerulean-blue *Eritrichium howardii* lie at altitudes approximately 4,000 ft. The winters are cold with snow coming in late October at higher elevations, and tempering the air. By December the plants are buried in drifts that do not melt until late in May. Thus the plant is dry and dormant about six months. The soil is full of water during the brief period of growth and flowering, by mid-June it is dry, the excesses having drained away and evaporated. With the ripening of the seed, the plant aestivates and does not make any appearance of growth until the following spring comes, in late May. Thus its life cycle is likened to that of the true desert plants, and its tenacity is doubtlessly due to its ability to cling to life through the summer by the roots being able to extract the most minute amounts of moisture.

THE MANY FORMS OF *ERITRICHIUM NANUM*

Herbarium material of the complex of plants relating to the European *Eritrichium nanum* includes extremes of variation in the congestion of the stems and leaves; some plants in flower are scarcely an inch in diameter and with flowers apparently stemless upon them, while others, according to identifying information from the same area in another season, are loose tufts with the stems drawn out, thus diluting the blue effect, though they may display the "fiddlehead" character of the family, lost in the few-floweredness of the tiniest ones. Margaret Williams says that her English friends have advised her that *E. nanum* in the Alps is an extremely variable plant, much more compact and desirable in one place than another, even to the richness of the color. Thurman has written, "Of one thing I am sure from observations both on Beartooth and in the Wallowas, these are consistently more compact than those seen in the Montana stations, the Big Snowy and Little Belt ranges and on Old Hollowtop."

Woodward and McPhail, of Vancouver, B. C., also went to Beartooth as did Margaret Williams. She writes that here on this flat-topped plateau they grow on the level and with what would appear to be poor drainage in heavy soil, and were far easier to dig than those of *E. howardii*, the roots coming out in a nice ball, "undoubtedly the reason I succeeded with it (for a while)." She kept one plant in a scree bed of fine pumice and leaf mould

for two seasons; it flowered well and then inexplicably died. This one had been growing in a very loose sandy soil. McPhail writes, "Our plants were collected in July on Beartooth (10,940 ft.) where they grew in the company of Polemoniums, Myosotis, Mertensias, Drabas, mat-forming Lupines, etc., in meadows whose soil is not at all as expected; although it contains a lot of humus, it is also full of a great deal of fine clay, so that when rubbed through the fingers it has a slippery feel. The root systems are quite compact and easily collected with a good ball of wet earth. There is little about the plant or its association to suggest it can be so ornery in captivity. Plants were put into pots of one of four composts on our arrival home: 1—their native soil alone; 2—this with equal portion of granite chip; 3—our normal scree mix, equal parts loam, leaf mould and coarse sand with three parts granite chips; and 4—a tufa mix, like the last but with tufa passed through a quarter-inch screen for the granite. All pots were top-dressed with granite or tufa tucked well under the collars and were plunged into the sand on the alpine house staging in its sunniest part; what moisture they received was absorbed through the pots; some were "double-potted" with space between pots filled with sand.

"By the middle of our wet and clammy October, just as we were beginning to gloat over our success, the casualties began. By spring half were dead and only two were strong enough to flower, both beautifully, both in tufa mix. As the local bees took no interest, they were hand-pollinated and one set seed. By the following spring the plants had diminished to those same two; once a plant starts sliding downhill, it deteriorates quickly in spite of anything to be done. By the following summer they were reduced to a lone one, having been unfortunately left on the ledge of the alpine house where they got rained on, and that one looks as if it would never forgive such absent-mindedness."

Bob Putnam had a similar experience; plants from the Little Belt Mts., treated identically to those of *E. howardii* in the same coldhouse, came to flowering and set some seed; then passed away in summer. Thurman thinks they are naturally short-lived; and observes, "Many dead plants were to be seen in the wild among the living and this was also true with *E. howardii,* though not to such extent."

Plants of my own collecting, *E. howardii* from western Pondera Co., Montana, and *E. nanum* on Old Baldy's lower reaches in the Little Belt Range were treated in several ways experimentally, and in manners similar to those described; those surviving to flower were put out onto the north-facing scree in the garden in arid eastern Washington with a climate similar to that of Thurman's, but an unusual summer of heavy rains finished them off. None planted in the garden near Seattle have survived the wetness of winter, even against a rock and with a glass shelter overhead.

Scamman[9] wrote of this plant (in the form he called *E. aretioides*) in Alaska, "A charming little fuzzy plant of high mountains, with a rosette of hairy leaves covering the base . . . flowers in a capitate head, blue with a yellow eye and very fragrant." No one else seems to have detected or reported the fragrance. Ruth Nelson[7] wrote, "One of the most charming of the high

alpine cushion plants; anyone who sees its patches of brilliant blue among the gray rocks of those bleak heights will never forget the thrill caused by their beauty." (There is a striking life-size photo).

Eritirichium nanum in its many forms is confined to the arctic-alpine life zone and, in the New World, from Alaska's mountains to the Yukon and down the ridges of the Rocky Mountains as far as central Colorado. It occurs, as do many other Rocky Mountain elements, in the Wallowa Mts. of northeastern Oregon, some many miles disjunct. The soils in places where these plants are found are highly mineral-derived, in many instances showing only the slightest traces of organic material. This would indicate that nitrogen is a non-essential element to their success and might even be poison! Although the roots do not penetrate deeply, such soils at such altitudes do not probably heat in summer, and the dew likely is also a contributing influence, though it is likely absent in the situations where *E. howardii* is found. In bringing them home it is therefore essential to keep them within this state of summer aestivation through the heat and drought of summer and without the cooling effect of water. It would be well to give the shelter and coolth to the root run by burying a sizable, porous, and mossy rock on its sunny side. In their natural state they are under snow from eight to ten months annually.

"I would advise a north exposure with a crevice for protection from winter rain, but *E. howardii* will appreciate a full exposure," writes Thurman, adding, "A very limy soil is necessary for it, with at least partial drying in summer, and perfect underdrainage." "Drainage is what was lacking with those lost here," Putnam writes, and adds, "Another time I would replant in a more loose soil." The many moulds and mildews so prevalent in gardens are not bothersome at alpine altitudes. McPhail writes, "It is my understanding the main cultural difficulty is due to a fungus attacking the collar of the plant just above the soil level; plants examined after demise were found to have the roots still in good condition right up to the collar, which had turned soft and pulpy. For this reason it is necessary to keep the collar as dry as is possible, and they should never be watered from overhead."

Whereas *Eritrichium howardii* is most often to be found exclusively in its own company, it does occur with such things as Douglasias, Drabas, and Smelowskias. "It is a little puzzling trying to understand their associations in the wild," says Margaret Williams: "Why is *Douglasia montana* easy for me to grow in the garden when I cannot keep the Eritrichium? The Drabas have seeded and the Smelowskias have become almost a pest!" *Eritrichium nanum* is very choosy about its companions, but not so much so as to deign the association of *Aquilegia jonesii* or *Synthyris pinnatifida,* on limestone with the former and granite with the latter, as on Hollowtop in the Tobacco-Root (Pony) Mts., where the great summit ridges are acres of choice alpines in scree conditions, including such subjects as *Arenaria sajanensis, Eriogonum ovalifolium, Penstemon procerus* (a miniature development), *Silene acaulis, Douglasia montana biflora, Phlox hoodii* and *P. muscoides, Androsace lehmanniana,* and *Collomia debilis,* with the Smelowskia also, as well as dollar-Drabas and the four-bit ones, too.

ERITRICHIUM FROM SEED

Aymon Correvon[8] advised a method of growing seedlings in a flat of slates arranged crevice-like and on which the seed is planted in granite sand, peat, and slate-dust in the quarter-inch crevices, and the flat put out in the snow until spring, or some arrangement made to give alternate freezing and thawing. Hills[4] advises a method similar to that used by McPhail, who planted the seed on tufa submerged in a loose soil, "They germinated well but damped off shortly. As Hills advises setting the seedpot right out on the open ground for better ventilation and protection from overhead moisture by a glass supported with a wire framework, I'd follow this advice next time," he advises. Thurman planted in his sandy scree soil and added ground agricultural limestone at the rate of 100 lbs. to a yard, and left them out in the rigors of winter until the driving winds of spring, when they were sheltered in the alpine house. In summer they went into the lath-house (this area has a prolonged summer drought in a normal season)."The *nanum* sorts will not take full sun at this elevation, but *E. howardii* seems to want it, along with dryness. They must have a high lime content to the soil and by my tests, a pH of around 8.0, and would best have a glass cover in winter, I am sure. I find a plant the size of a quarter can be grown in a single year with bloom the second year; the third year they are as large as any plant seen in the wild, and with me their demise comes in the third and fourth year. I did have one plant through four years, though not under ideal conditions. Anyone keeping a plant over four years should have a gold star!" He does not think longevity is inherent and considers five to ten years in the wild to be their normal span.

ERITRICHIUM — A CONCLUSION

If anything new is to be learned from the opinions and observations of those who have gone to the remote places where these tiny blue alpine forget-me-nots on tufts of platinum filigree are found in nature, it is probably that they can be grown, though with exacting care and patience; and that is not new! It would seem that Correvon in describing his success in the sphagnum beds (Farrer's "moraine") should be an inspiration.[2] Certainly the plants should be grown in a place filled with light, though not heat, and well-ventilated, whether in the open garden or under cover. The Correvon flat, converted to a trough garden, might prove the medium in which success will come.

It is not going to be easy to duplicate their ecological wants in the garden; what we must do through experimentation is to discover under what conditions they will succeed, if any, and through a succession of seedling generations attempt natural selection of a race more amenable to cultivation. Certainly the effect of too much water is seen to be one cause of its precocity. Some ruminations over the "critical factors of the quality and temperature of the snow water combined with the quality and effect of the sun's rays at great altitudes" have been heard from Mr. Bulley, who deplores that "the difficulty with such plants seems to be permanent." [8]

> "The blue of *Eritrichium* is absolute; lacking the tiny violence of *Gentiana verna's* sapphire satin, and the almost vicious intensity of *Scilla bifolia,* it has a quality of bland and assured perfection impossible to describe as to imagine." Farrer[3]

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The other contributors, from personal correspondence with permission to quote, for which the author-compiler wishes to thank them.

REQUESTS BY MEMBERS

Will any member who is able to fulfill a request, please contact directly the person who has made the request!

Trillium decumbens, T. declinatum, T. hugeri album, T. lanceolatum, T. ludovicianum, T. masculatum, T. pusillum, T. pusillum var. *virginianum, T. stamineum, T. stylosum album, T. vaseyi album.* Mr. John C. Lambert, 1907 Charms Road, Wixom, Michigan 48096.

Sedum alboroseum—up to 36 plants. Mr. Ben Haines, 1902 Lane, Topeka, Kansas 66604.

Primula scotica, Linum 'Gemmell's hybrid', *Lithospermum canescens, Tunica saxifraga* 'Rosette', *Saxifraga oppositifolia.* Plants please. Mrs. Armen H. Gevjan, 536 Dogwood Place, Newtown Square, Pa. 19073.

Helichrysum frigidum, Rhodothamnus chamaecistus, Campanula raineri (true type), *Anchusa caespitosa, Briggsia penlopii.* Rooted cuttings or seed. Will exchange dwarf Hebes in variety, Pimeleas, *Myosotis uniflora* and *colensoi, Leptospermum pygmaea,* Celmisias, and Raoulias. Mr. James R. Le Comte, No. 2 R. D., Ashburton, New Zealand.

Asplenium viride, one plant or a dozen, will buy. *Flora of the Southeastern States,* by J. K. Small. Second Edition, New York, 1913. Will be glad to pay a very good price. Mr. Leonard Wiley, 2927 S. E. 75th Avenue, Portland, Oregon 97206.

Will send long list of interesting plants for rock garden or woodland which I am willing to exchange with anyone who sends me their list of surplus plants or seeds. Will consider anything hardy but particularly interested in miniature conifers, miniature roses, sempervivums, sedums, tiny bulbs, shade loving plants, perennials which are truly miniature in leaf, flower and height. Will take cuttings, plants, or seeds. Mrs. Virginia Schmitz, Cedar Hill Rd. RFD, Fishkill, N. Y. 12524.

Please send your requests to Mrs. Sallie D. Allen, 18540 26th Avenue N. E., Seattle, Wash. 98155. For inclusion in a specific issue of the *Bulletin*, requests must be received by the first of the month, two months prior to publication date. It is impossible to acknowledge receipt of requests.

NOTES ON SCREE BUILDING

GERHARD SIDOW, *Montvale, New Jersey*

There must be many rock gardeners who would like to try their green thumb by growing the more demanding alpine plants, but feel that their local climate, or the location of their garden, forbids any thought of successful scree gardening. Faced with such difficulties, I was, nevertheless, determined to have my scree and to overcome the difficulties as best I could. Having come to the conclusion that I have had some success, I feel that it would be worth while to pass my experience on to those who face similar problems.

My rock garden was built upon an embankment of between 35 to 40 degrees, facing east-southeast, with its top soil being poor. The climate of Montvale, New Jersey, closely resembles that of New York City; Montvale being about fifteen miles northwest of that city. Temperature and humidity are high in summer and the winters are temperamental, with temperature fluctuations of forty degrees within twenty-four hours not uncommon.

Would Saxifrages thrive on a steep hill facing the hot sun for the greater part of the day in this climate? They might prefer better conditions but they will grow and bloom for you under these conditions if you give them some of your time.

My scree was built from the very foot of the hill, running about seven feet up with an average width of about five feet. A hole was dug into the hill at the foot of the embankment to a depth of one foot and extended upward to about two feet at the top, exposing the hard subsoil. The mixture of the soil to be filled into the cavity thus created differs considerably from recommended scree mixtures, since such a porous mixture would not be able to retain enough moisture on such a steep grade. Since drainage on a hill is no problem, but drying out definitely is, I made the mixture much more compact and water retaining than is usually used on more level ground. I used five parts garden loam (pH 7-8), one part sand, one part limechips, and some partially decayed leaf mold (maple and sycamore).

Before filling the cavity with this mixture, I put two metal pipes at the top of the hole straight down to the bottom, so that after the cavity had been filled up to the surrounding level with the scree mixture, the two pipes would protrude two inches above the ground. The scree mixture was then filled in with some rocks used to break the surface of the scree. The extending pipes were camouflaged by plants and rocks. Next, three large clay flower pots were buried to the rim also at the top of the scree, care being taken that they might not be easily seen. The whole surface of the scree was then covered with small stones and pebbles of a texture to blend in with the rocks used throughout the garden.

It was hoped that the water poured into the pipes would run downhill underneath the scree and that some of it would return to the surface by capillary attraction, giving the roots needed moisture, and, by evaporation, reduce the heat of summer by a few degrees. The flower pots serve the same purpose for the plants closer to the top of the hill.

In the spring of 1966 the project was completed and some plants were set out. Every rainless morning during the summer months the pipes and pots were filled up with water and, though the summer of 1966 was exceptionally hot and dry, Drabas grew into tight little green balls, *Androsace sarmentosa chumbyi* spread its silver rosettes all over the pebbles, various *Saxifraga aizoon* plants looked healthy all through the summer, and *S. burseriana* held its own and a little better. *S. decipiens* browned out to about 50 percent during the summer, but recovered splendidly in the fall. *S. stribrnyi* did not make it, but little *Dianthus carthuria nana* (?) bloomed nicely that first summer. The scree is further populated with *Dianthus alpinus, D. neglectus, Erigeron compositus,* and *E. pinnatisectus.* This year (1967) all plants performed well and bloomed as expected.

The scree is exposed to the full force of the sun up to noon when a distant maple casts a light shadow. The strength of the afternoon sun is blunted by the tilt toward the east of the scree. Surely none of the plants mentioned are the most demanding, but few would have survived, or much less flourished, without the preparations. More difficult ones will now be tried, but even if they should not succeed, the huge flowers of the tiny *Saxifraga burseriana* in March is reward enough for my labors.

PLANTS TO KNOW AND GROW

CONRADINA VERTICILLATA—UPLAND RABBIT-BANE

Some 40 years ago, I contributed to the *National Horticultural Magazine* a series of notes entitled "Neglected Natives." The idea was to call attention to some of our own east-American species with horticultural promise, which are rarely seen among the multitude of Eurasians dominating our gardens. Considering that such a series might be of interest to members of the American Rock Garden Society, a start was made by publishing in a recent *Bulletin* (October, 1967) an account of *Viola appalachiensis,* our Mountain Violet. Since with man's ever-expanding intrusions on Nature many species are threatened with decimation, if not extinction, it seems desirable to call attention to others of potential value, in the hope that they will be rescued and preserved in culture before the native colonies vanish.

Conradinas are shrublets of the Mint family possessing such an intense aromatic fragrance that rabbits avoid them,—not only providing a colloquial name, but also suggesting a rock garden use, the protection of one's esculent treasure. There are four or five species native to the lowlands of Florida and Alabama, not winter-hardy, but the one here discussed, which grows in the Cumberland or Interior Low Plateau of Kentucky-Tennessee, can withstand zero weather.

Although apparently long known to the natives of this region as "Wild Rosemary," (it does resemble the Mediterranean *Rosmarinus*) it did not receive a technical name until formally described by Professor H. M. Jennison of the University of Tennessee in 1933. It grows on acid sandy slopes and flats along rivers, and has, no doubt, been largely destroyed by modern dams. Fortunately, it was hunted up by Mrs. J. Norman Henry while still

Conradina verticillata Mr. Lloyd Nick

surviving locally, and grown in her garden at Gladwyne, Pennsylvania; and she generously permitted me to take cuttings for propagation at the Morris Arboretum.

This shrublet reaches a height of six inches, or so, the flexuous branches bending down, striking root, and spreading into clumps. The small, narrow leaves are evergreen. It blooms about the first of June with axillary clusters of attractive, lavender-pink, two-lipped flowers. The accompanying illustration was drawn by Mr. Lloyd Nick in the Henry Foundation garden. Since it does not come from "faraway places with strange-sounding names," few dealers are likely to propagate and distribute it, but rock gardeners can pass it around.

EDGAR T. WHERRY, *Philadelphia, Pa.*

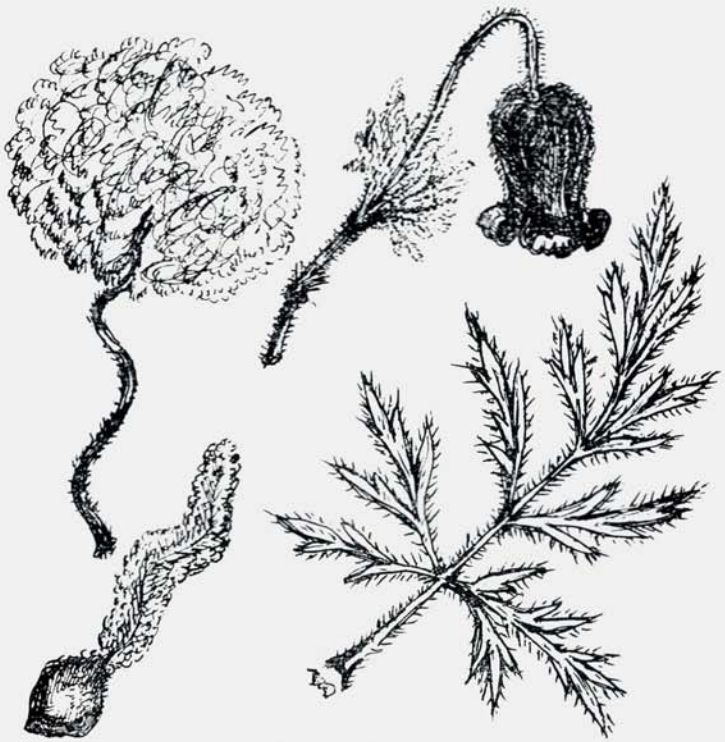
CLEMATIS HIRSUTISSIMA

Clematis hirsutissima is a low herbaceous perennial species of the Columbia Plateau prairies and foothills. This short, stocky little plant, from a deep-rooted woody base was once plentiful and beloved of school children, who sipped the nectar from the blossoms and knew the plant as "Sugar-Bowl" therefore, is becoming a vanishing plant due to the relocation of roads and railroads, the last resorts of many prairie species, and to the indiscriminate use of the "weedicides," particularly along such rights-of-way.

The foliage shows early in the spring; a crisp, bright green, but so intri-

cately divided and re-divided and clothed in a fuzz of soft hairs as to appear quite grayed. Each clump (they are long-lived and spreading at the crown) will produce from a few to a dozen stems. These stems, clad in this sage-colored fur, terminate in a quaintly nodding, elegantly urn-shaped blossom of a strange chocolate-plum-purple and suede texture; the grayed exterior woolly with a short, dense nap; the rich coloring very prominent at the deeply channeled and recurved tips. The interior of the blossom is a grayish mass of many stamens and many pistils. As the days pass, these four sepals (there are, of course, no petals) become more leathery, then dry, to be pushed off by the expanding seed head, which develops into a two-inch silken pompon of dozens of long-plumose akenes on an elongated and strangely twisted stalk to over a foot in height.

Clematis hirsutissima, named by Pursh in 1814, has also been known by Hooker's name of 1829, *C. douglasii,* and as *C. wyethii* of Nuttall, 1834. It was, quite logically, put into *Pulsatilla* as *P. hirsutissima* by Britton in 1891, and it far more nearly resembles others of this anemone-like assemblage than it does the majority of *Clematis* species. For a time it reposed in the genus *Viorna,* now allied to *Clematis.* It was among the plants collected by the first botanist in the area, Lewis, of the Lewis and Clark Expedition, David Douglas and Nathaniel Wyeth, among others. Now, scarcely a century and a half later, it is among the plants needing protection.



Clematis hirsutissima

Roy Davidson

Young plants are seldom seen in nature, and frequently the big, fluffy seed heads bear no fertile seed. Established plants show every evidence of being very old; often a large colony can be traced to a common origin, having spread amidst the grasses and low shrubs by the spread of the woody crowns, which root down and then become detached.

Transplantation is relatively successfully undertaken in late autumn or earliest spring, although re-establishment comes only slowly. Like so many of the long-tailed seed subjects, it is not always easily germinated, even when good, plump seed is available. Stratification is indicated, and germination may be delayed for a season, according to one of Nature's obscure plans.

Some of the commonest companions of *Clematis hirsutissima* include *Iris missouriensis, Geranium viscosissimum, Rosa nutkana, Symphoricarpos racemosus, Viola adunca, Frasera albicaulis, Lithospermum ruderale,* and *Erythronium grandiflorum,* as well as numerous species of Gramineae. It is a strange personality of a character that is unique unto itself.

ROY DAVIDSON, *Seattle, Wash.*

LUZULA NIVEA

Unless something goes wrong somewhere, the next seed list will offer *Luzula nivea* which, as far as I am aware, has never (or not for a long time) been heard of in the pages of the *Bulletin.* As the name implies, *Luzula nivea* is a white-flowering wood rush (Juncaceae), native to the southern Alps, where it carpets the floor of the chestnut woods. Though a shade plant, it stands a good deal of sun and it is perfectly hardy—down to 30 degrees below zero in my region.

A very good illustration is to be found in Wilhelm Schacht's *Der Steingarten* and, no doubt, also in the recently published English edition. Schacht says of it that "it never becomes obnoxious and is beautiful everywhere." It is best used in groups, for accent, at the foot of a rock, against a wall, or for background planting in a small rock garden. In our garden, it reaches a height of 20 inches at the flowering stage. Sampson Clay, however, in his *The Present-Day Rock Garden,* gives it a height of "from a foot to a yard," but he also agrees that it is "gracefully beautiful."

Personally, I would be slightly more restrained in my evaluation, perhaps merely because our plants, now two years old, are not yet at their best and look somewhat thin. Still, we definitely like *Luzula nivea* as a species out of the run of the common rock garden plants.

J. P. ZOLLINGER, *Kingston, N. Y.*

CALIFORNIA - NEVADA SECTION, ARGS — Mrs. Pauline Croxton, secretary of this Section, whose address is 6309 Green Valley Road, Placerville, Calif. 95667, requests that ARGS members be informed that from time to time activities within the Section, in Northern California and sometimes in Nevada, are scheduled, and that notices will be sent to interested persons. The Fall Meeting was held November 16 at Placerville in the morning and in the afternoon and evening at Sacramento. Should you desire to be put on the mailing list, write to Mrs. Croxton and advance notices of future activities will be mailed to you.

WILDFLOWERS IN A SOUTHEASTERN GARDEN

ANNA SHEETS, *Reidsville, N. C.*

For months I have looked in vain in the *Bulletin* for material on plants in my part of the United States; the Southeast. This is the region south of Washington, D. C. and north of Florida; the area roughly taking in lower Virginia, Tennessee, the Carolinas, Georgia, and parts of Mississippi and Alabama; running from the Atlantic Ocean to the Mississippi River. This area covers parts of temperature zones 7 and 8, from Azalea-Camellia climate at lower altitudes to the Balsam Fir peaks in the Smokies and Blue Ridge mountains. I believe that we can grow a greater variety of plants in the Southeast than can be grown in any other region, possibly the Northwest excepted. My own state, North Carolina, is blessed with three distinct climates, with temperature variations of as much as 20 degrees. On the coast there may be only a touch of frost, while the mountains have zero weather. I live in the central Piedmont area where the low ranges from 10 to 20 degrees in normal winters, and a drop to 5 degrees is a rare and painful experience. (This happened last March after roses had leaved out. It was a severe blow to many evergreens, as well). But we can and do grow many subtropical plants with only light protection, and by choosing microclimate locations properly. Likewise, the cold-loving plants get the cool, shady spots.

As many of you know, this region holds a wealth of native plants, particularly at higher elevations. These are well known in wildflower books, but are seldom mentioned by the people close to them, natives of the Southeast who write for publication. There seems to be a strange silence in garden magazines on native plants in general and of those of the Southeast in particular.

There being two schools of thought on the preservation of our wildflowers, I will only say for those who are horrified at the suggestion of gathering plants from the wild, that we have two very fine wildflower nurseries in North Carolina from whom I bought the greater number that I grow. Others we gathered from our family acres in the Blue Ridge Mountains, and in our own county. I have had good results when plants are carefully collected and kept moist until established.

For several years after we built our house, I did not try to move wild plants into our wooded back lot. Most of the trees were pine and the soil poor and dry. But there were pink ladyslippers, *Cypripedium acaule,* all over the place, and I felt sure that other acid-loving plants would grow there, too, if given a chance. So three years ago we started clearing out the briars and honeysuckles and made a couple of winding paths through the woods. We brought in some native shrubs and planted more dogwoods and redbuds, but kept the natural look. We noticed that near the garden on the edge of the woods, one corner of the lot was lower and sloped to the north. Here the soil was more fertile and moist, and there were the added assets of a native evergreen magnolia, *Magnolia virginiana,* and a large tulip tree, *Liriodendron tulipifera,* for shade. Here, I decided, would be my "wild garden."

Along a curved path, the bed was laid out, about twelve feet long and from three to ten feet wide. Winding through the widest part, I laid out a narrow cross-path, necessary for viewing the small jewels. My husband dug out three pine trees, a maple, and a sickly willow, leaving only a small dogwood, *Cornus florida,* in the bed. All around the bed the native growth was retained except for the weedy trees, briars and vines, and from the ravine at the back we hauled several barrow loads of leaf mold to spread on the bed. We worked it in with a 'tiller to a depth of six inches. This made the ideal acid planting medium and nothing else was added in way of food or humus. The first plants were put in that fall of 1965, others added the next fall and by this October I could only find room for some background ferns under the trees, and a few more clumps of arbutus! Some things are growing so fast that they need curbing and foamflower and partridgeberry nearly cover the bed.

Some evergreen shrubs and trees were put in as background and to define the property line. Rhododendrons, azaleas, holly, leucothoe, pieris, laurel, and magnolias were used with the pines. Several gum trees and an oak give good shade without hungry roots taking over. All maples were removed.

Before I list the names of the wildflowers and ferns growing here, I'd like to stress the three essentials of growing wildflowers in this climate. (Field flowers are not considered here, as the growing of plants in a sunny wild garden would be a different story).

A wild woodland garden starts with *shade.* Trees, if possible, or a building or an arbor will do. Secondly, the *soil* should be prepared, with extra humus natural to the spot, if possible, or from nearby woods. Tree roots should be removed. They will grow back, but the plants will have had a start and can compete with them. *Water* is the third essential; whenever you plant and whenever the top inch of soil feels dry, for the first year, at least. More plants are lost from lack of water than any other cause. In hot weather, a light sprinkle every day is not too much. A mulch should always be a part of the shady wildflower planting as it helps hold moisture. Pine needles and leaves are left where they fall except for the large oak leaves which are picked off the smaller plants. In spring, when growth starts, some plants will need to be uncovered and what fun it is to find hidden buds under the leaves in March! The following wildflowers are thriving in my shady bed or along the path to it. A dozen or so others did not succeed and were taken out. Trout-lilies have failed twice; mertensias did not bloom, and Cardinal Flower needed more sun. Several violets had to be moved because they did too well!

Actea alba—Aletris farinosa—Anemone lancifolia—Aplectrum hyemale —Asarum canadense—A. shuttleworthii—Carex fraseri—Cornus canadensis —Cypripedium acaule—Dicentra canadensis—D. eximia—Dodecatheon meadia—Epigaea repens—Galax aphylla—Gentiana andrewsii—G. septemfida—Goodyera pubescens—Habenaria ciliaris—H. psycodes—Hepatica acutiloba —H. triloba—Heuchera americana—Houstonia caerulea—H. purpurea—Iris cristata—I. verna—Lycopodium selago—Lobelia siphilitica—Liparis liliifolia —Mitchella repens—Orchis spectabilis—Phlox divaricata—P. d. alba—P. stolonifera—P. s. (pink)*—Sanguinaria canadensis—Shortia galacifolia—Si-*

lene virginica—S. wherryi—Sisyrinchium angustifolium—Spiranthes cernua —Tiarella cordifolia—Tipularia discolor—Viola pedata—Viola rotundifolia.

There are also representatives of the following genera:

Antennaria—Arisaema—Aruncus—Chamaelirium—Chimaphila—Chelone—Claytonia—Clintonia—Gaultheria—Gillenia—Hydrastis — Hypoxis—Mitella—Panax—Pedicularis—Podophyllum—Smilacina—Trillium (4 var.) *—Uvularia,* and *Zygadenus.* The common names of the eight kinds of ferns I have are: maidenhair—ebony spleenwort—lady fern—wood fern—polypody —Christmas fern—fragile fern, and Southern maidenhair.

OMNIUM-GATHERUM

The American Rock Garden Society is growing. In the past two years many new members have been welcomed into the Society. Some of them live in far parts of the world. It is somewhat axiomatic that all new members are considered, by the older members, at least, to be new at rock gardening. This is not necessarily so. To believe that all the experienced rock gardeners, especially those who live in the United States, are already members of the ARGS, would be to assume that rock gardening is a rare avocation, indeed, for our members in proportion to our population are pitifully few.

It is further observed that many of our members are not strictly rock gardeners, per se, but do their gardening in areas that are not essentially "rock gardens," despite the fact that they may be working with plants that are alpine or saxatile, or both. There is a new book, a treasure surely, and in it various types of gardens are described though the title is *Rock Gardening.* H. Lincoln Foster, the author, describes such contrived habitats for the plants he loves as planted walls; raised beds; outcrops and ledges; alpine lawns and rocky pastures; moraines and screes; woodland areas; swamps, bogs and pine barrens; pools; walks, paths, and pavements; troughs and alpine houses, etc. Each gardener must make his own choice according to his desires and the topography of his home place. His ultimate creation, or the dream garden that he is working toward, may be, and usually is, a combination of any of several of the foregoing types of gardens. The common denominator of all these types is the plant population introduced—usually the "alpine and saxatile" plants of Mr. Foster's book, but included may be the individual gardener's desire to have about him other plants that may be neither alpine nor saxatile, i.e., plants that are native to the lowland wooded areas, the fields and the low hills, the bogs and streamsides. All members, experienced or novice, particularly the new ones, may find answers to many of the questions that, so far, have remained unanswered, by having Mr. Foster's book among those close at hand for frequent reference, for within its pages enlightenment may be found.

To the editor, ever searching hungrily far and near for sources of material for the *Bulletin,* the quarterly listings of new members loom large in potentiality. Hidden therein must be many precious nuggets of experiences and garden knowledge, which if brought to light in the *Bulletin* would render needed service to our members. But some way must be found to tap this ever increasing reservoir of desirable material. All that the editor can do is make a general appeal to the new members to join the too small group of

older members, who by their contributions, make the *Bulletin* possible. Material may take any of several forms: comments, opinions, answers to questions already asked, new questions, experiences in plant hunting, in plant culture, discussions of individual species—there are a dozen other suitable subjects.

How to extract these nuggets and convert them into usable material is the editor's problem. Occasionally, though far too infrequently, material is volunteered which never fails to surprise and delight him. Mostly, the editor makes known his material needs and a certain few of the faithful bring forth what is necessary. It is through the efforts of these few and those who volunteer that material for successive Bulletins is kept in good supply. But it is to the new members that the readers of the *Bulletin* must look for refreshing comments, new experiences, different methods of accomplishing gardening objectives, oddments of species idiosyncracies, native plant portraits, pertinent questions previously unasked, etc. Prepare your contribution as best you can and leave the rest to the editor. He does not expect literary excellence, though he is most happy when such is encountered. His great problem is in determining how best to reach and activate these new members —even one of them.

* * * *

OHIO WILDFLOWERS — Under the title "More Ohio Wildflowers" (*Bulletin* of July, 1968), Mr. Paul H. Boswell of Massillon, Ohio, wrote knowingly of the wild flowers that are native to his part of Ohio. Immediately comments came from Mr. Harry Butler, Spring Valley, Ohio, and from Dr. Edgar T. Wherry. Seemingly the article inspired Mr. Butler to take the initiative in an attempt to arouse interest among the scattered Ohio members of the ARGS in a proposed meeting in Mansfield, Ohio, sometime in September or October. It is not known as this is written whether or not the meeting was held. However, such a meeting, if it were held, might well have served to revive interest in rock gardening in the whole Great Lakes area.

Dr. Wherry, after congratulating Mr. Boswell on his article, asked him if he would send seeds or plants of *Blephilia ciliata* and *Hydrophyllum appendiculatum* to the Bowman's Hill State Wildflower Preserve where they are trying to introduce and keep growing all notable species native to the State of Pennsylvania.

FURTHER EXCERPTS FROM MR. BOSWELL'S LETTER—"I am most happy to receive letters from any of the ARGS people and I shall do my utmost to cooperate with their desires and needs, but I never dreamed that I might ever get a letter from Dr. Wherry, who has been a mentor and source of inspiration to me for many years."

In writing about his experiences in germinating seed, he says, "My flats are always constructed of hardwoods, preferably of yellow poplar (*Liriodendron tulipifera*), which lasts for several years and has a minimum susceptibility to fungus attack, especially if one-inch cleats are nailed on the bottom to keep the flat from direct contact with the soil."

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