American Rock Garden Society Bulletin

Vol. 31 **January, 1973** **No. 1**

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Published quarterly by the AMERICAN ROCK GARDEN SOCIETY, incorporated under the laws of the State of New Jersey. You are invited to join—annual dues are: Ordinary Membership, $5.00; Family Membership, $7.00; Patron Membership, $25.00; Life Membership, $150.00; Overseas Membership, $3.50. The subscription price per year is $4.00. The office of publication is located at 90 Pierpont Road, Waterbury, Conn. 06705. Address communications regarding membership, dues, and other matters relating to the Society to M. S. Mulloy, 90 Pierpont Road, Waterbury, Conn. 06705. Address manuscripts and other matters relating to the *Bulletin* to Albert M. Sutton, 9608 26th Ave. N. W., Seattle, Washington, 98117. Second class postage paid at Waterbury, Conn.

AMERICAN ROCK GARDEN SOCIETY BULLETIN

Albert M. Sutton, Editor

VOL. 31 JANUARY, 1973 No. 1

OF CANYONS AND CANOES, PYROLAS AND PADDLES

BARRY N. STARLING, *Epping Upland, England*

After flying for ninety minutes in a northwesterly direction from Toronto, over two of the world's largest lakes, our 'plane began its descent. As we broke through the thin cloud, the north shore of Lake Superior snakily divided the cold blue of the water from what at first sight appeared to be an undulating velvet quilt of greeny-black forest stretching, unbroken, over hundreds of square miles. Soon the shape of Nanabijou, the legendary "Sleeping Giant," became discernible as a rocky, fir-clad peninsula guarding the now visible town of Thunder Bay, beyond.

A few minutes later we landed and stepped out into the chilly air, refreshing after the heat of Toronto. It was still early on the morning of July 3, and we learned that frost had occurred the previous night blackening potatoes, beans and dahlias and it soon became obvious from fields and gardens that we had taken a step back in the growing season.

Thunder Bay is a recent name for the settlement which embraces the two towns of Fort William and Port Arthur. It is industrially concerned with the manufacture of wood into paper pulps and lumber, and also boasts the largest grain elevators in the world, which transfer grain, delivered by rail from the prairie to the west, to ocean-going freighters that ply the Canadian Seaway and then on to the ports of the world. The Trans-Canada Highway passes through the northern part of the town, a four hundred and fifty mile section between here and Sault Ste. Marie forming part of the scenic "Circle Route" around Lake Superior.

However, our first objective was the modern Lakehead University, and in particular its herbarium, where I hoped to find the curator, Mr. Claude Garton. I had corresponded with Mr. Garton before leaving England and in replying, he had kindly offered to take me to local regions of contrasting floras, including a canyon with an arctic ecology and a perched bog. It does not do to get preconceived ideas of curators of herbariums, for my image of a somewhat aloof, studious, dry as dust boffin, was shattered as Claude Garton cheerily invited my wife, two young sons and myself to "c'mon in and make yourselves at home." Here was one of the friendliest, easy-going characters we were to meet in the whole of friendly N. America.

Soon we were making plans for the few days we were to spend in Thunder

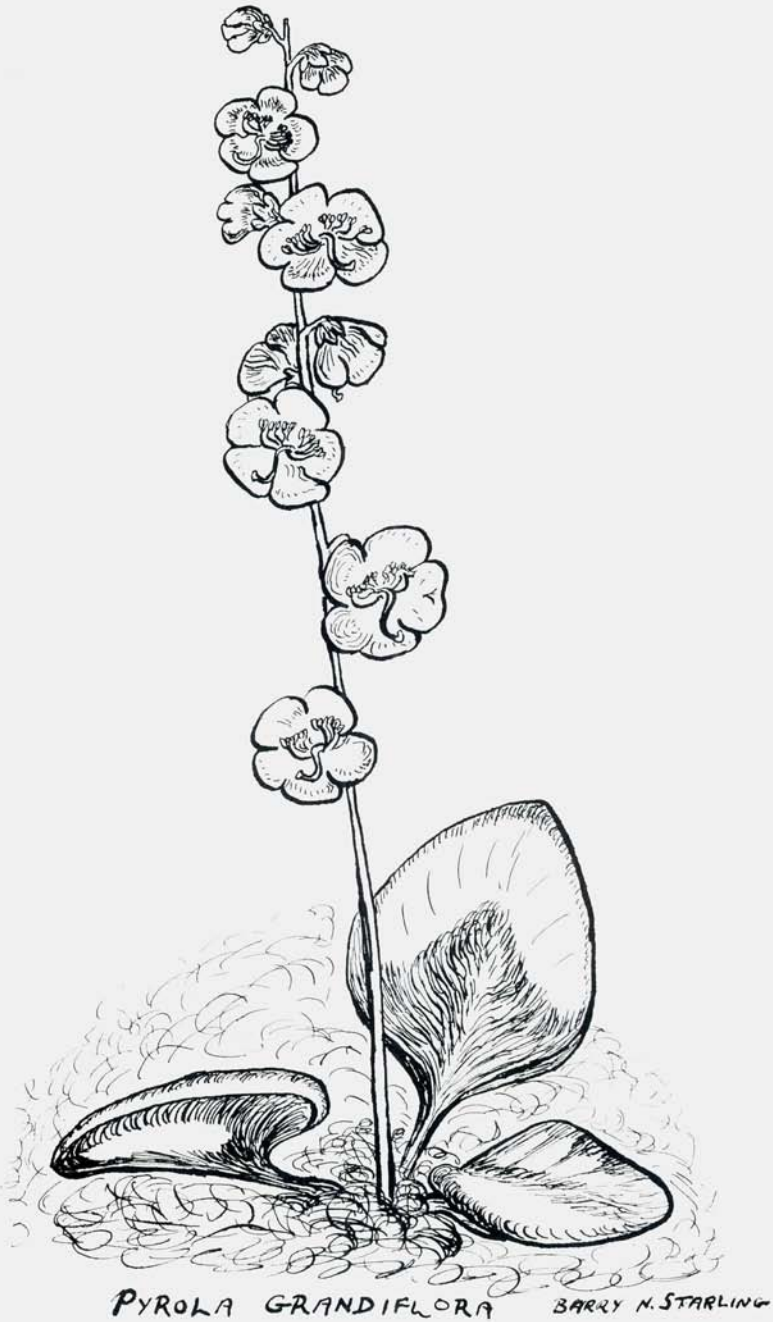
Bay. We decided that next day, while my wife and the boys explored the town, Claude Garton and I would set off early to see a recently discovered canyon about fifty miles to the east.

Next morning, with provisions for the day and plant presses loaded in the back of the truck, and a canoe firmly roped onto the roof, we set off at seven-thirty for the canyon. We sped along the highway for about forty miles before turning onto a dirt road between lofty Jack pines, firs and spruce. We followed this road for about five miles and then forked left onto a track through the bush barely wide enough for the truck. Three miles later the track made a sharp turn into a clearing and we stopped overlooking an expanse of deep, placid water, in which were clearly mirrored the front ranks of an endless army of surrounding firs. A short, steep path led to the water's edge and along this we carried the canoe, a bundle of presses, our lunch box and liquid refreshment.

This was my first experience with a canoe and I clambered aboard clumsily trying to avoid putting my foot in the lunch box and in doing so nearly capsized the craft. I took up a forward position and grasped a paddle, while Claude pushed off from the side, and we were soon moving smoothly through the water. As the shores of the lake began to rise more steeply and the only sound was an occasional croak of a distant raven, a feeling of absolute tranquility came over us. No signs or sounds of human origin could be detected; the sun shown in a clear sky and a slight haze in the morning air gave an ethereal quality to the scene, making me wonder if this was all a part of a dream. Soon rocky, iron-stained cliffs towered on either side, with just a fringe of trees growing where they could in the scant rock debris at the lakeside. The end of the lake was marked by an accumulation of driftwood through which we carefully steered a course to a small gap in the undergrowth where we could disembark.

Stumbling ashore, my gaze alighted on a large, moss-covered boulder, about the size of a couple of peat bales, upon which was perched a small group of *Pyrola asarifolia,* showing red buds. Lower down the boulder plants of *P. secunda* were dotted about, still in tight bud, while barely a yard away, growing in moss and rotting wood, the magnificent arctic *P. grandiflora* was in full bloom. The sturdy little stems, up to 8″ in height, bore from six to twelve pure white, lightly flushed pink, 1″ diameter flowers like miniature fine china saucers. The few rounded, deep green leaves arose from the rootstock radially, to lie facing upward, on a cushion of moss. To the left grew a sizeable bush of *Ledum groenlandicum,* open and straggly in habit but bearing a profusion of clustered white flowers. Some we had seen in the vicinity of Thunder Bay had long since flowered and this gave some indication of the arctic influence of this micro-climate in retarding the flowering season. We were to see several more plants in flower in the canyon, that would have bloomed a month earlier nearer the shores of Lake Superior.

The reason for these arctic conditions was that the floor of the canyon was a bed of permanent ice. On top of this, boulders of varying dimensions, some being as large as a small room, were heaped and tumbled together, while over all grew a thick carpet of moss. Claude Garton's expert knowledge of every plant organism to be found in this area, was amply demonstrated as he introduced me to the numerous species of the mosses, liverworts, algae, lichens,


PYROLA GRANDIFLORA
BARRY N. STARLING

sedges and ferns, as well as the flowering plants. It was the mosses, and humus they formed, together with the rotting trees, that provided a suitable habitat for so wide a range of flowering plants. The three or four hundred feet high sides of the narrow canyon effectively reduced the day length by cutting out the sunshine for much of the day. Consequently, snow was slow to clear and the ice remained as a cooling agent throughout the summer.

Picking our way up and over, in between or around the giant rocks, we found *Pyrola grandiflora* plentiful and used up much time and film as we discovered better specimens, more photogenic groups or isolated plants illuminated by a ray of sunlight. Also prolific were Linnaeas and *Cornus canadensis,* often growing in association with the graceful Oak Fern around a rotting stump, making a charming picture. A clump of bright golden Arnica was just in flower while others found were yet in bud. A Salix, about five feet high, bore fawn-colored, fluffy inflorescences atop an open bush, in marked contrast to the tiny-leaved, inch-high mats of *Salix myrtifolia,* an arctic willow which we also found sparingly distributed over a small area on the canyon floor.

Tucked away in a moist, dark, rocky recess were several interesting ferns, including *Woodsia alpina,* which seemed to sprout from the rock face and dainty little *Cryptogramma stelleri* formed a fresh green ribbon along a horizontal flaw. *Cystopteris fragilis* was fairly abundant, as was *Woodsia ilvensis,* a soft, hairy little fern of attractive appearance. *Asplenium trichomanes* was only to be found under a narrow belt of trees well up the sides of the canyon where the heap of rock debris sloped up to meet the steep cliff face.

By now the warm sun was directly overhead and we were struck by the contrast in temperature as we clambered over rock surfaces exposed to the sun and then down between boulders, almost to the ice floor, where cold air hit us as if we had stepped into a freezer.

As we penetrated deeper into the canyon, a *Ribes* species, widespread in the area north of Lake Superior, was here just beginning to flower, producing pendent racemes of greeny-white, currant flowers on low, spreading shrubs. Further on, the small, slaty-blue faces of *Viola palustris,* rare in this locality, peeped out from the thick, mossy carpet. Another unexpected find was the silvery, encrusted rosettes of *Saxifraga aizoon* studded along the cracks and crevices. Only two or three dead flower spikes, possibly remaining from the previous year, were in evidence and I wondered if the lack of light accounted for the paucity of flowers. It seems odd to see these typically limestone plants growing in close proximity of Pyrolas and other plants normally associated with an acid soil. This is probably because the rock is hard Dolomitic red shale of high pH, but rich in iron. Obviously the plants growing in decaying wood and mossy humus were little affected by the small amount of lime leached from the hard stone, whereas trace elements, particularly iron, were readily available.

By midday we had reached the deepest part of the canyon and to go on would have yielded only repeats of plants we had already seen. We stopped to apply more "fly dope" against the ever present mosquitoes and then, reluctant to turn homeward, scanned our immediate surroundings again with renewed intensity. Suddenly we were aware of a tiny, white, five-petaled flower amidst the moss. My companion was delighted at this find as it was a plant entirely new to the area and we lost no time in searching moss-covered rock faces for

more of this little rarity. It proved to be *Arenaria humifusa,* an arctic species previously unknown anywhere else in Ontario—which put its nearest known location at least one thousand miles away! Claude Garton's pleasure was complete when, searching for more of the Arenaria, he found growing in close proximity, a minute liverwort species, similarly unknown elsewhere in the province.

We returned along the canyon feeling very pleased with the day's finds, collecting a few herbarium specimens on the way, and taking masses of photographs. Lunching at the lakeside, we spotted *Iris versicolor* growing and flowering in the shallows, while on our return trip in the canoe, we beached for a few minutes to take shots of *Lilium philadelphicum* in flower under the firs. As we paddled back a slight breeze rippled the water and we were conscious of the extra effort required to counter the influence of the eddies it caused. All too soon we were roping the canoe back onto the roof of the truck and then trundling off, lurching and bouncing over the rough bush track. As we passed another small lake, a wide V of ripples disclosed the presence of a beaver swimming toward us. We stopped the truck and, camera poised, I sped towards a clump of trees for which the beaver was heading. I never got my photograph, or saw any more of the beaver, but there, growing in rotting logs steeped in water, was a beautiful plant of the minute-leaved *Gaultheria hispidula,* already flowered, but with the pearly-white berries as yet undeveloped.

We jogged on to the main road and homeward, but there was another treat in store for me, flora-wise. About half way back we left the highway and motored along a side road for about ten minutes; leaving the truck in a meadow; colorful with daisies, Goat's Beard, and Blue-eyed Grass, we tramped for a further ten minutes to the edge of a wood. There, in full bloom and at the height of perfection, was a breath-taking, half-acre stand of *Cypripedium reginae;* hundreds of exquisite pink and white orchids were poised like sugar-plum fairies above an army of soft green, pleated shields.

At 18 inches to two feet high, these plants were considerably taller than the small clump I had left in bud in my garden at home. The color, too, was

far more intense than I had seen in cultivated plants and although my plants had been "bred in captivity," I began to feel no better than those who cage wild birds and then shortly bemoan the lack of lustre to their plumage.

Having generously photographed this magnificent colony, we made our way back to the truck and within an hour were back in Thunder Bay, devouring a good-sized meal and recounting our story, while two small boys listened, filled with envy at the thought of a canoeing trip to an unexplored canyon.

THE GENUS *MARSHALLIA*

DONALD W. HUMPHREY, *Falls Church, Virginia*

The genus *Marshallia* is a uniquely American group of seven species in the composite tribe Heliantheae. This large tribe contains many genera and species, some very weedy, others well-known garden flowers. Among the latter are *Zinnia, Rudbeckia, Cosmos, Chrysogonum* and *Coreopsis. Marshallia* differs from the foregoing genera in that it has no ray flowers, and it is this feature, more than anything else, that sets these plants apart.

Other characteristics of the genus are basal growths of entire, untoothed leaves. These leaves vary from narrowly lanceolate in *M. graminifolia* to mostly oblanceolate or obovate in the remaining six species. The slender flowering stems have a number of reduced leaves and the stem may be branched or unbranched, each stem or branch bearing a single head of flowers. These are white, pink or lilac and bear a superficial resemblance to Bachelor's Buttons. Height of the stems varied from 6″ to 24″, but in the four species I grow average between 8″ and 16″.

The genus takes its name from Humphrey Marshall, an early American botanist and cousin of John Bartram. He authored *Arbustum Americanum* in 1785, the first work on American trees and shrubs. He also founded the first botanical garden in the United States at Marshalltown, Pennsylvania.

The generally accepted species are *MM. grandiflora, graminifolia, obovata. caespitosa, mohrii, ramosa* and *trinervia.* Two other species are listed by J. K. Small in the *Manual of Southeastern Flora,* but these, *M. laciniarioides* and *M. williamsonii,* are now generally considered to be forms of *M. graminifolia.* Small, who was undoubtedly a great field botanist, listed many forms as species which have since been reduced to something less than specific rank.

The most common English name for the genus is Barbara's Buttons, but various authors have referred to it as Loud Speakers, Puff Balls, and Wild Bachelor's Buttons.

The genus is usually listed as occurring in the southeastern United States. While this is generally true, it does not give a clear picture of species distribution. This is easy to demonstrate by treating each species separately, beginning with what are probably the three most common species: *MM. graminifolia, obovata,* and *caespitosa.*

M. graminifolia is a plant of the wet savannahs and acid bogs of the outer coastal plain from Pamlico River, North Carolina southward to Florida. It grows with a variety of orchids, pitcher plants, Pinguiculas, Aletris, Polygalas, *Iris tridentata,* Eriocaulons, Rhexias, Sabbatias, *Zigadenus gla-*

berrimus, Chaptalia tomentosa, Lachnanthes caroliniana, and Pleeas and other savannah plants. Nearly all of these show a common coastal plain characteristic of having narrow, entire leaves.

M. graminifolia is the last of the Marshallias to bloom, its pink or lilac flowers appearing in August or September. Though it grows normally in soils that are usually waterlogged the year around, it does very well for us in rich, moist loam. It grows in full, hot sun. The flowering stem may branch four or five times, each branch carrying a head of flowers. A good color photograph of this species may be seen in *Wildflowers of North Carolina* by Justice and Bell.

M. obovata is a plant of the sandhills of the inner coastal plain and the adjacent piedmont from the Carolinas to Georgia. Variety *obovata* is the piedmont form and has from 4 to 7 stem leaves; var. *scaposa* is found in the sandhills and has 0 to 3 stem leaves very near the basal cluster. Though *M. obovata* grows in acid soils, at least in the sandhills it is very dry at times; and I am convinced that var. *scaposa,* which I grow, should be planted in rather sterile, sandy soil in hot sun to avoid lax flowering stems.

The flowers of *M. obovata* are white, the flowering stem generally unbranched, the flower head about one inch across. It is one of the early bloomers, beginning as early as late April, but sending up flower stems sporadically for several months. It has a basal rosette measuring 4 to 7 inches across. It is a good plant for the rock garden.

Marshallia caespitosa is new with me this year, grown from seeds supplied me by my faithful Texas ARGS correspondent, Mrs. J. Kenneth Blackmar of Luling, Texas. The basal cluster of leaves resembles *M. obovata,* but the leaves are longer and narrower. It is the most westerly species, growing from southwestern Missouri to Louisiana and Texas. Its habitat is listed variously as rocky or upland prairies, limestone glades, bald knobs, calcareous prairies and the southern post oak area of the Texas coastal plain. The latter area has, I believe, a calcareous soil and it would appear that this species is well adapted to basic soils. In my rock garden it is thriving in neutral to acid soil. Like the two foregoing species, it seems to do best in full sun. It is said to be sweet-scented, a claim I could not find for any of the other species.

The botanist, Julian A. Steyermark, writes of *M. caespitosa* in his excellent *Flora of Missouri,* that:*

> "I have grown . . . variety *signata* for several years in the prairie section of my wildflower preserve in northern Illinois, where it has acclimated itself admirably to the northern climate and does very well, bearing profuse flower heads. It is an attractive species and should be more widely grown in limestone rock gardens and perennial beds exposed to full sun."

Steyermark is not only a fine botanist but a discerning gardener as well who has experimented with many midland wildflowers in the rock garden. Anyone interested in American wildflowers will profit much from perusing his book.

Flowers of *M. caespitosa* are usually white but may be pink.

Marshallia grandiflora is an outstanding plant. Its pinkish-lilac flowers

are borne on 8 to 12-inch stems, are about one inch across, and a single plant may have a large number of stems. It has the distinction of being the most northerly species and is apparently uncommon to rare throughout its range which is generally listed as the Appalachians from Pennsylvania to Georgia. Its habitat is listed variously as bogs, riverbanks and dry woodlands.

My plants were received as seedlings from Mrs. Herman Allen, of Gaithersburg, Maryland who, I believe, obtained seeds through the Bowman's Hill State Wildflower Preserve north of Philadelphia, Pa. If so, the following notes from the booklet on the Preserve, entitled *Native Plants of Pennsylvania,* are instructive. They say of *M. grandiflora:*

> "A more attractive composite would be hard to find . . . This perennial may be propagated easily from seed. The plant has been known as Wild Bachelor's Button. Its native home in Pennsylvania, is now preserved in a State Park at Ohiopyle, Payette County, the area from which the preserve plants were first received."

Those who are acquainted with Ohiopyle State Park may know it as an outstanding wildflower area in the deep gorge of the beautiful Youghiogheny River of southwestern Pennsylvania.

An interesting characteristic of *M. grandiflora* is that it produces little plantlets in the axils of the leaves on the flowering stems in the manner of some Hemerocallis, *Lobelia cardinalis* and other perennials.

The remaining three species are unknown to me, a condition I hope is temporary. The most widespread is *M. trinervia.* It is apparently rare throughout its range which is the upland areas from Virginia, eastern Tennessee, south through the Carolinas to Alabama and Mississippi. Its general rarity can be judged from the fact that the *Flora of the Carolinas* by Radford, Ahles and Bell lists it only from Macon county in the high Appalachians of southwestern North Carolina. Gattinger, in the *Flora of Tennessee and Philosophy of Botany,* notes it from the vicinity of Tullahoma in south central Tennessee, but that was in 1901. Who knows its status there today? Also in 1901, Charles Mohr in the *Plant Life of Alabama* lists it for ". . . limestone cliffs in Bibb County" and the banks of the Little Cahaba River. Lower hills and dry open woods of the mountain regions are listed as its habitat.

M. trinervia has two characteristics unique in the genus. Its basal rosette is apparently deciduous and it spreads around somewhat by rhizomes. Its pink flowers are borne on stems to 18" in July.

The remaining two species are apparently rare and local which makes them perhaps more interesting and desirable. *Marshallia ramosa* is listed from on or near the coastal plain in Georgia. Its stems are from 6 to 24 inches high. The leaves are said to be up to 12 inches long. Flower color is not listed.

M. mohrii comes from the interior plateau of Georgia and Alabama. It is said to be generally taller than *M. ramosa* and has comparatively few, elliptic leaves.

In summary, I think one may say that the genus *Marshallia* comprises an interesting, little-known group, seldom grown in rock gardens. The flowers are not as showy or conspicuous as many rock garden species nor do they have foliage in a class with some saxatile plants, but they are definitely worth

growing. They come easily from seed, appear to have no insect pests, are hardy in the vicinity of Washington, D. C. and probably as far north as Massachusetts, at least for *MM. grandiflora, caespitosa,* and *trinervia.* They are not invasive nor sprawly, nor do they seed around. The basal rosettes increase well and can be divided every 2 or 3 years to increase the stock. Seeds of the first four species treated in this paper have been in the ARGS seed list. Hopefully, adventurous collectors may obtain plants or seeds of *MM. trinervia, mohrii* and *ramosa* and put them into circulation. For plants of restricted range like the latter two, growing them in gardens may eventually be looked upon as a survival mechanism in the same sense as *Franklinia alatamaha.*

REFERENCES

Bailey, L. H., 1939—*The Standard Cyclopedia of Horticulture.* MacMillan Co., N. Y.
Gattinger, Augustin, 1901—*Flora of Tennessee and Philosophy of Botany.* Gospel Advocate Pub. Co., Nashville, Tenn.
Justice and Bell, 1968—*Wild Flowers of North Carolina.* Univ. of N. C. Press.
Native Plants of Pennsylvania. A trail guide to Bowman's Hill State Wildflower Preserve.
Small, John K., 1933—*Manual of the Southeastern Flora.* Univ. of N. C. Press, Chapel Hill, North Carolina.
Reeves, R. G. and D. C. Bain, 1947—*Flora of South Central Texas.* Texas A and M., College Station, Texas.
Steere, William C., General Editor, 1967—*Wild Flowers of the United States,* Vol. Two, *The Southeastern States.* McGraw-Hill Book Co., New York.
Steyermark, Julian A., 1963—*Flora of Missouri.* Iowa State Univ. Press, Ames, Iowa.
Mohr, Charles, 1901—*Plant Life of Alabama.* Contributions from the U. S. National Herbarium, U. S. Govt. Print. Off.
Radford, A. E., H. E. Ahles & C. R. Bell, 1964—*Manual of the Vascular Flora of the Carolinas.* The Univ. of N. C. Press, Chapel Hill, N. C.
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HORTUS THIRD COMING — Word has been recently received from the Director of the L. H. Bailey Hortorium, Cornell University, that the extensively revised and rewritten edition of *Hortus Second,* to be entitled *Hortus Third,* has been essentially completed and will be published by the Macmillan Company in late '73 or early '74.

Dr. Bates, the Director, also states, "We are planning a series of exciting new ventures in horticultural systematics upon the completion of *Hortus Third.* These are basically concerned with the creation of an information system on ornamental plants through the use of electronic data processing equipment. I think members of your Society (ARGS) will be particularly interested since their plants are found through such a broad spectrum of plant families."

* * * * *

A SUPPLEMENT TO REQUESTS BY MEMBERS — The editor is in receipt of a "want list" much too lengthy to be reproduced in the *Bulletin.* It is from Vaclav Plestil, Bela 41-p. Turnov, ok Semily, Czechoslovakia, who wants Rhododendron seed. The list contains at least 180 species which are listed by series and subseries. If you have Rhododendron seed available, even in small quantities (that is if you have any left over after contributing to the various Seed Exchanges), it is suggested that you write to Mr. Plestil, telling him what you have to offer and then wait for his reply.

IN CENTRAL EUROPE

VACLAV PLESTIL, *Turnov, Czechoslovakia*

It was first reported that a few American alpine gardeners might come to visit us, but upon arrival there were nearly forty. I had been asked to guide this group to the High Tatras. I feared that I might not communicate well since I read and write English, but seldom speak or hear it. Since the Tatras have been my weakness for years, to be able to lead others to them made me happy.

I looked forward with more pleasure when my old pen pals wrote that they were coming, but my garden, which they planned to visit, was being reconstructed and could not be put in order in time. I finally told myself that all alpine gardeners made changes—rock gardens are never finished—and they would understand.

The first meeting, upon their arrival, was very informal and for me, very exciting, but I was afraid I would not remember the names of so many, but our friends were very patient and understanding.

One evening there was a common meeting of all alpine gardeners. There were slides from both countries of rock gardens and wild localities. It was very enjoyable seeing plants, known and unknown, as shown by Mr. Harold Epstein and Mrs. Margaret Williams, from natural scenery in, for us, a rather exotic country. My friend, Vladimir Vasak (often a contributor to the ARGS *Bulletin*), whom I see rarely, was leaving the following day for a three-month expedition to the Altai for plants and seeds. Mrs. Subrova, our editor of *Skalnicky,* came to this meeting directly from the airport upon the completion of her trip to the Bulgarian mountains.

The next day, 28th June, Mrs. Olga Duchacova guided us to the garden of Mrs. Vera Stepankova where awaiting us also was Mr. Heinz Weber from Germany, remembered from his article on *Primula deorum* in our ARGS *Bulletin.* Mrs. Stepankova's garden contains no mighty vertical cliffs. It is more park-like. One part is devoted to the Ericaceae and other woodland plants. Through the garden are groups of Rhododendrons—many rare and all in fine condition. A newly constructed part now contains many choice alpines. The main collection of tiny jewels is growing in pans and in pots—some of them are awaiting their new homes in a proposed tufa frame. We were surprised here with a Czech specialty—cake with milled poppy seed. Next day, when we photographed a field of flowering poppies, I remembered that the edible poppy, *Papaver somniferum,* is not grown in the States.

We visited the garden of friend Jaromir Grulich at Sedlonov. This village lies at the foot of Eagle Mountain and has rainy and on the average very cool weather. I was eager to see this garden which I knew only from photographs and slides and seeing his first-prize-winning plants at the Prague Spring Exhibition. Reality was even finer than expected.

Mr. Grulich's rock garden is situated in a small valley with running water. The several branches of the brook divide the garden into interesting parts as it meanders, forming showy corners. There are many alpines and all in perfect condition. Among them were various Raoulias, healthy Celmisias, richly flowering *Helichrysum marginatum* and many Androsaces. All agreed that Mr. Grulich's garden was truly a beautiful one.

Tour group fascinated by the rock garden of Mr. Jaromir Grulich in Czechoslovakia. The dark spot in the lower right hand corner is a bit of the brook that meanders through the garden.

Vaclav Plestil

A heavy rain storm prevented our visiting a rocky serpentine steppe in south Moravia. The next morning on our way to Slovakia to the Tatras, we visited an old castle park with trees nearly three hundred years old; one, a golden form of *Taxodium distichum*. It was a pity we could not spend more time there. On our way the characteristic outline of the Slovakian mountains greeted us and in countless variations accompanied us all the way to the Tatras.

We made plans that evening for the next day to visit screes and snowfields and to see our first alpines in their homes, but we were told of a country fair next day, close by where people came from villages often in folk dress. It was a nice, sunny day and around the small village church were many people—some were in folk dress, but not as many as there were only a few years ago. But the characteristic architecture and all the beauty of the Belanske Tatry above the village was not changed.

In the afternoon we reached the Skalnate Pleso, not by climbing as I usually do, but by cable car. Josef Halda came from Prague to be with us for two days. This area is on granodiorite—acid ground—and above the lake we found all the distinct alpines we are to find in the remaining part of the acid Tatras. The group dispersed to photograph them. To reach more showy floristic areas would take many hours of climbing so we chose to see the small groups of alpines here. We had a happy time as so many plants were in bloom and our photo hunting was not without success. Here we met with Mr. Jos. Starek, from Prague, and with Dr. Chaloupecky, who were with another group. But one day in this part of the Tatras is too little. After today we were more

anxious for the limestone area of the Belanske Tatry. We spent the evening in a small restaurant in conviviality.

For the next day we divided the group as not everyone was able to take the longer trip over the mountains. Dr. L. Paclova from the Geobotanic Institute at Bratislava, guided the second group, walking in the lower elevations in the forest zone. No one could have been a better guide as she is a keen alpinist and her knowledge of the flora of the Tatras is perfect and she very patiently explained the plants they saw. We were lucky, nearly all possible plants were seen: *Cephalanthera rubra, Orchis masculata* in thousands, *Gymnadenia conopaea* and also the bigeneric hybrid between the last two plants, and higher, *Leontopodium alpinum* in full bloom. It was a pity we could not go on over the ridges to see formations of *Saxifraga caesia* and other small gems. In one spot we saw the tiny bright jewels of *Gentiana nivalis* (now *Hippion nivale*). I worried only that we could not stay another day as the Tatras were in the midst of their flowering time.

After this trip I had to return home at evening by train as my vacation was finishing. So the last evening we spent in discussing in small groups, in exchanging of experiences, and only very unwillingly we took leave. Many of my new friends came with us to the railroad station, and we discussed here planning further collaboration in alpine gardening. We mentioned many times our common friends who were not with us here, and again we returned to our dominion of plants and mountains, gardens, alpine houses, seeds and seedlings, books, slides, etc. I must truthfully say that this was, although very short, the nicest vacation in my life. I have seen that alpine gardeners do have, without limit, their common language, and that all the world could be better; it needs only to want to understand each other.

At the end, I would like to again thank all my overseas friends that I could feel myself at home in their group.

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TO THOSE WHO DESIRE SEED OF NEW ZEALAND ALPINES —Following is an excerpt from a letter to the editor from Mr. James Le Comte, No. 2 R.D., Ashburton, New Zealand:

"The interesting article, (Germination Studies of Some Alpines) by Trevor Cole (ARGS *Bulletin,* July, 1972) has prompted me to write to you. Seed of New Zealand alpines have a short life, in particular the genus *Celmisia,* but often the fault lies in collecting unformed seeds or seed partly eaten by a beastie that burrows into the seed heads of the Celmisias. In company with a prominent American plantsman, I will be making many collecting trips into the mountains this season and hope to be returning later to harvest seed of desirable species. This seed probably would not be viable for the next seed list (ARGS Seed Exchange list for 1972-1973, now that the interim seed list has unfortunately been discontinued. If members who are genuinely interested in New Zealand alpines (especially Celmisias and Aciphyllas) care to write to me, listing their desires, I will try to be of help by sending fresh seed. Since this seed must be sent airmail, the approximate cost of mailing will be 72 cents. Please enclose this amount with your request, and PRINT your name and address. If the seed harvest is unsuccessful, each remittance will be returned. No USA stamps, please!"

DAPHNE PETRAEA IN THE WILD AND IN CULTIVATION

GARTH MERELIE, *Newcastle upon Tyne, England*

In Britain, *Daphne petraea* has long been regarded as one of the most desirable shrubs to own. Well-flowered plants at the shows of the Alpine Garden Society and the Scottish Rock Garden Club have won the Farrer or the Forrest Medal, depending on in whose show it was entered. Perhaps Farrer is partly responsible for its popularity, because he is unstinting in his praise for its beauty. What would he have written about the larger form *grandiflora,* we may well wonder. This form was collected out of flower and is larger in all its parts. Not until some years after its collection was the full beauty of its flower revealed.

Having three young sons, I was doing my fatherly duty in July of 1969 by taking them camping at the seaside which, in this case, was a tourist resort called Cesenatico on the Adriatic coast. We were combining a bit of 'beach' with our traditional alpine holiday. Fortunately for me, we arrived during a terrific heat wave and, after only two days, my family almost begged me to take them back into the mountains so that they could cool off. By a strange coincidence, we happened to reach Lake Garda when it was time to pitch camp. Although this location had not been planned in advance, I vaguely recalled reading in the AGS Bulletins about a Dr. Hruska and about a daphne, both somehow associated with that lake.

The next day we visited Dr. Hruska's garden at Gardone beside Lake Garda and it is pictured and reported fully by Roy Elliott in AGS *Bulletin,* Vol. 36, pages 48-53. For those readers who do not have this *Bulletin,* a few words must be written of this garden. It contains enormous man-made 'mountains' constructed of blocks of tufa and limestone cleverly cemented together. They are modelled on the nearby Dolomites and planted up with a vast number of alpine plants. I liked the way that artificial dwarf conifers were omitted and only true indigenous species were grown, which made the overall effect most realistic. I did not like many of the plants which were grossly out of character as a result of the Riviera type climate there.

In the afternoon of the same day, we set off to find the Cima Tombes and *Daphne petraea.* This was a bad mistake, however, because although it is feasible to run up and down mountains in Switzerland with comparative ease, this part of Italy turned out to be a different proposition. The only map which I had been able to purchase was almost useless. I suspect it was printed by the Italians during the war to confuse their enemies. A run which should have taken a few minutes by car lasted for hours. Driving up into the hills from the side of the lake enabled us to see drifts of Agave in the cliffs and one had a fifteen-foot flower spike hanging from it. Eventually we reached Megasa, a quaint little village from which, it is said, the daphne can be found. We took the car up a track but after a while, we were forced to park the car because the Italians were still building the road. Together with a German I had teamed up with, and my eldest son, Gavin, we set off on foot. After a few minutes walk we were chased by an angry Italian fellow who wanted us to move the

car so that he could blow up the road! "Boom, boom" he shouted, with a finger stuck in each ear.

After my German friend had explained that my wife (who we had left behind at the car) had an ignition key to move it, the Italian ran off muttering furiously.

Next, two Italian girls saw us, dropped their scythes, screamed, and ran for their lives. What a strange place!

It was still very hot, but we were delighted to see drifts of *Cyclamen europaeum* growing under trees. A farmer pointed out the Cima Tombes which was nothing but a slight haze in the far distance. We passed an enormous block of limestone, half buried in the grass, and a solitary plant of *Phyteuma comosum* was growing out of it, in full flower. From here on, the tale is a sad one, because we did not reach the foot of Cima Tombes until six o'clock and the light was already fading. We reluctantly retraced our footsteps without further incident. Nevertheless, I resolved that one day I would return to look for the daphne.

During the following year, we visited the famous alpine garden "Florealp" at Champex in Switzerland, the gardener in charge, M. Anchisi, made me a present of a transparency of the daphne taken ten days earlier on 29th June. It was in full flower.

We did not arrive at the Cima Tombes area until 17th July. Growing in the cliffs were *Primula spectabilis* and *Primula albocincta* which had all long finished flowering. There were numerous plants of *Phyteuma comosum* in full flower. All these plants were growing out of the sheer white cliffs in the blazing Italian sun. Eventually I came upon one plant of *Daphne petraea* which showed the remains of a few flowers. Despite the lack of flowers, it was a great treat to see the tiny gnarled branches adpressed to the hot sunbaked cliffs. The rock was not completely solid as first appearance would suggest, because the plant was running out of cracks in the rock several feet away from the main part of the plant. How much dwarfer and close growing this plant is compared to the form *grandiflora.*

No attempt was made to take any part of the plant with roots, but a large number of cuttings were taken from the tips of the branches. This species has a bad reputation for resenting root disturbance and it was thought that taking cuttings would provide a better chance of success, while leaving the plant almost intact to nature.

Having seen all the plants I had been looking for, we found enough time for a short stay in the tax-free village of Livigno in Northern Italy before wending our way home.

In cultivation, *Daphne petraea* has a long history and Farrer was famous for the plant he took to the shows.

Harold Esslemont of Aberdeen, Scotland, believes that the type plant is more desirable than the form *grandiflora.* He says because it is smaller in all its parts, it makes a better specimen plant. He once had a plant, collected from the Cima Tombes, growing out of a block of tufa. I understand that he removed the flower buds for a number of years to prohibit it from flowering and this helped the growth of the plant. Eventually, when it was ready for showing, it produced a great abundance of flowers and easily won the Forrest medal.

Of the scores of cuttings taken in the wild by me, only two have rooted. These are growing in blocks of tufa . . . They are now almost two years old and have not shown any discernible sign of growth—not even a single additional leaf from the day they were collected. They consist of single branch tips. This is a long term proposition, my friends!

If one is lucky enough to buy a plant from a nurseryman, it will normally be *Daphne petraea grandiflora* grafted on to the stock of *Daphne mezereum*. It could be years before the opportunity to buy one arises and it is therefore a plant to be treated with utmost respect.

Being perfectly hardy, *Daphne petraea* is capable of being grown either in the rock garden or in a pot. There is a disadvantage in growing it in the open ground, however. If it is necessary to move it for any reason—perhaps because it might not receive enough sunlight to ripen the wood to encourage it to flower—it is extremely intolerant of root disturbance and transplanting it could be fatal to the plant. It is reputed to be tricky in a pot. I am told that if the plant is kept too dry in winter, the flower buds, which have set in the autumn, can drop off. On the other hand, overwatering can be fatal to any precious plant when grown in a pot.

After many years of careful cultivation, Mrs. Greenfield of Epsom, Surrey, now has a plant growing in a 12″ pot and it is overhanging the edges. In order that she can enter it in the competitive classes of the Alpine Garden Society shows, she is unable to pot it on. According to the rules, the maximum size of pot is 12″—the measurement being taken inside and ½″ below the rim. Instead, Mrs. Greenfield gives it a light liquid feed which compensates for the lack of fresh compost.

However, the plant is so brittle she hardly dares move it. She has two other similar plants except that they each have a main branch missing owing to their sudden demise. This gives the plants a 'lopsided' appearance and precludes them from being shown. Could it be that portions of their root systems die in their pots and this was reflected in a portion of their top growth being affected? Another 'interesting' experience she recounted to me is that ten years ago she grafted three plants on to stock of *D. mezereum*. They prospered. Now, this year, they all look sick and are preparing to die. Why? We will never know, but we will not be able to blame faulty cultivation, because Mrs. Greenfield's care and attention is impeccable.

I was extremely fortunate to buy a plant of *Daphne petraea* recently from Mr. Ingwersen's nursery. It is now carefully top dressed in a pot with lumps of stone carefully concealing the enormous graft between these two seemingly incompatible plants, one being evergreen and one being deciduous. Only patience, careful attention, and the passage of time are required and, given success, this plant should provide a lifetime of joy. It has been said that the best way to enjoy *Daphne petraea* is to buy it when you are young and live a long time!

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A QUESTION OF NOMENCLATURE — Is it *Chiogenes (Gaultheria) hispidula* or *Gaultheria (Chiogenes) hispidula?* Which, as of this moment, is correct? There seems to be competent authority either way. May we have a learned discussion on this subject for use in a future *Bulletin?*

BOOK REVIEW

THE COMPLEAT NATURALIST — A Life of Linnaeus. Wilfrid Blunt with the assistance of William T. Stearn. The Viking Press, 1971, 625 Madison Ave., New York, N. Y. 10022. Price $14.95.

Carl Linnaeus is best remembered today as the father of binomial nomenclature (i.e. a Latin name for each species, consisting of two words only) and a concise and serviceable descriptive terminology. Modern botanists through international agreement have accepted his *Species Plantarum* (1753), listing the 1098 genera and 5900 species then known to him, as the starting point for botanical nomenclature. Names published before this date are designated "Pre-Linnaean," even those initiated by Linnaeus himself. How the pugnacious old warrior would have exulted over the recognition of his work, though momentarily huffing over his inclusion in "Pre-Linnaean!"

What is not so well appreciated, though equally important, is the wholesome effect on botany produced by his "Systema Natura" (1735), in which he propounded his "Sexual System" of classification, later adopted as the basic arrangement of all his botanical works. Prior to Linnaeus, classification had been bogged down in competing natural systems, difficult to understand and more difficult to apply. The botanical young men of the day hailed Linnaeus's "Sexual System," which grouped plants according to the number and arrangement of their stamens and pistils, as enabling them to get on with the discovery, cultivation and description of new genera and species. That the "Sexual System" was specious—Linnaeus himself granted it was "stop-gap"—and destined to be overthrown by the more natural system of de Jussieu and his followers detracts no whit from its essential function: that of serving the needs of its time and giving to botany a new impetus and direction.

To those of an imaginative turn of mind, the blossoms of the beloved twin flower of Linnaeus, *Linnaea borealis,* seem to symbolize his contributions: the revitalization of eighteenth century botany with its continuing effects on today; and the stabilization of binomial nomenclature.

Reviewing *Species Plantarum* in the *Gentlemen's Magazine,* December 1754, Sir William Watson described it as "the masterpiece of the most compleat naturalist the world has seen." From the quotation comes the title of this fine book which combines expertise of the art critic—curator—writer, Wilfrid Blunt with that of the eminent botanist, Dr. William T. Stearn, of the British Museum, ARGS member and lecturer on "nomenclature" at the recent Harrogate Conference.

Mr. Blunt's biography, drawn largely from Linnaeus's Journals and writings, and those of his contemporaries, is the highly readable story of a man who by sheer force of will and industry changed the botanical climate of his time. The nine-tenths perspiration of his genius pervades every page of the book. But, as has been charged, he was no mere laborious drudge; he was an inspired technician with a gospel: "look, I have given you a compendium of all known plants, an over-simplified classification system, a plant name shorthand. Now let's get on with the real business of botany: the actual world of plants."

The author sums up his subject in a few lines: "He was not, however, just a dry scientist who believed that an animal was of no interest until it was pickled in alcohol, a flower of no significance until it was dead and buried in the cupboard of a herbarium; he adored nature in all her manifestations; and above all, he never lost his sense of wonder." The last clause, one feels, would be a triumphant epitaph for any man.

Legend ascribes many defects of character to Linnaeus. A close perusal of this account of his life reveals how venial were his sins—he was a braggart; he attempted to prescribe to the Establishment; he loved to receive plants but gave none in return; he played fast and loose with the Society over his Lapland journey when actually his attempt was only to cover his expenses;—mere peccadiloes which, had he been a religious man, would have bothered his conscience but lightly.

Dr. Stearn's Appendix on Linnean Classification, nomenclature, and method is a model of its kind. Botanically sound, it is written in language intelligible to the layman. He has a gift for making clear the complexities of science.

As well as a biography, this is an art book in mini outsize of 8″ x 12″. There are 32 full page color plates of the highest quality together with over 150 monochromes scattered throughout the text. Only a man of Mr. Blunt's experience could assemble such a superb collection of visual art. A personal favorite is a fine color reproduction of a photograph by Mr. R. C. Elliott, editor of the A.G.S. publications and an A.R.G.S. member, of *Linnaea borealis*. Throughout the book are numerous indications of Linnaeus's love for the twin flower named after him, at his own request, by his friend, Grovinius; a monochrome of the handle of a walking stick carved with *L. borealis,* said to have been made by Linnaeus when in Lapland; a color photo of a china tea set which Linnaeus commissioned his pupil, Pehr Osbeck, to bring back from China; partially broken in transit, replacements were ordered, but in the second set the flowers were red rather than the correct pink; (N. B. look for a red twinflower; perhaps nature has aped art!); and Linnaeus's coat of arms bearing *L. borealis* and his original sketch for it. Incidentally, Mr. Blunt has little regard for the artistic ability of Linnaeus, commenting somewhat tartly: "Mattise once said that his ambition was to draw like his little girl of five. Linnaeus achieved this effortlessly." A full color engraving of *Dodecatheon meadia,* used in designing the A.R.G.S. emblem, brings to mind that this plant was placed in the genus *Meadia* by Catesby in honor of Dr. Richard Mead. Linnaeus, in a fit of pique, changed it into the "Twelve Gods" genus, perhaps on the supposition that numbers would add multiple force to his disapproval!

No biography of Linnaeus would be complete without the story of this botanist and his dog, Pompe. The two customarily went to church each Sunday. After an hour of the unfinished sermon, Linnaeus, thinking the parson long-winded, would get up and leave. On the days Linnaeus was unable to attend, the dog went alone. Invariably, true to the script, Pompe, at hour's end, made a pointed exit.

One's reason protests that the events of such beguiling tales never happened; one's heart says that if they hadn't, they should have. What a dreary place this world would be without those charming eccentrics, who, when actuality becomes a trifle dull, never scruple to embellish or even to invent.

What matter if their evidence is such as would stand up only in a court of lore. Compulsively, they struggle to cope with what they conceive as a disharmonious world—just as a high "C" bound soprano in mid-aria must cope —or discordancy will come crashing down about the ears of all of us. Lord luv 'em, they

"Do more good by their fascinating lies
Than all the learnings of the wise."

Buy, beg, borrow or steal this book, preferably in that order. If, "in extremis" you are forced to purloin, and are apprehended, smuggle this volume into your cell. You will spend a pleasant sentence with *The Compleat Naturalist.*

Clifton L. Merrill, *North Bath, Maine*

THE ABANDON ROCK GARDEN

GLENN LEWIS, *Los Angeles, Cal.*

This garden had been seven years in the making. It contained 889 species. Tons of rock had been wheeled from vine-covered fieldstone walls and placed. Even pebbles had been placed.

Twice a year the mails brought snips and shoots and fragile bits. Once a year came seeds, yet more fragile and needing. Mountains were climbed for plants. Books were read for plants. No labor was too much—from the half-frozen earth of spring to the half-frozen earth of coming winter—for plants.

Each plant was known daily, seen as patients are seen on doctors' rounds. Weeds, rabbits, moles, bugs, molds, and blights—contaminations to be guarded against as hospitals guard against germs. Beware of flood, drought, and the untimely freeze!

And they were always there—the threats—just waiting for a moment's neglect, an oversight, or an unexpected factor to twist the unnatural machinery of the lovely, piping garden of gems and cushions into a heap as attractive as a front yard filled with secondhand bathroom fixtures. But that would not happen. I was there, always . . .

It was autumn. I set my bags down for a last look. The spread of double bloodroot had been exploded by moles during the night. The orchid from Oregon had met the same fate. Rabbits were becoming more active. "It's on its own hook now," I thought. "It's swinging into its own ecology." I left the bloodroot and the orchid there. There were thousands of miles to drive. I wouldn't be back soon. College, work, and interests quickly took the time away. Letters occasionally had references to the rock garden.

"The violets are rampant. We've stopped trying to weed." "During the drought we had to save what water we could for the vegetable garden." "Your father has cut the maples springing up among the rocks." "Something purple still blooms in the spring."

I returned to the farm and the rock garden 12 years later. There had been winter visits, but this was spring. "You should have been here a week ago," said mother. "Some garden club visits every spring."

The garden, on its own hook, had become stable, a balanced ecology on

its own rock island. While 802 species had died out—87 had not—still a mighty rich landscape for a small dot of ground.

It had become a harmonious whole. Groupings and details had authoritative naturalness—something different from just a naturalistic planting. Plants had changed location by seed and runners—most had. Yet, some had not moved or changed in the 12 years. There were those that had grown smaller and tougher. Some delicate exotics were flourishing while natives with their homes just yards away had vanished from the garden. The carefully composed garden pictures were gone. Where there had been a fragment of the Pine Barrens here and a fragment of the Alps there —a bit of heath, swamp, and high desert—each had gone. Instead of a museum look, there was an authority and wildness that disclaimed its origin through me. Natural authority! Grand!

Where once I felt godlike, I felt but awe. The wind would rustle the papery Alliums without me, The Ericas would bloom. The primroses and the gentians would shift and settle by themselves. I wasn't needed—but there was grandeur in that knowledge. Like sending out a well-made son, there is grandeur in being not needed when one's job is well done. And even when it isn't well done, there is something nice in letting free things go.

But, I didn't let go willingly, did I? Perhaps I've learned. Gardens teach a lot. Oh, we gardeners—we're all such hopeless romantics and mystics. It's a secret, so don't tell. Lest we fly away, we stick to facts. Yes facts. Back to information. One does not read the *Bulletin* for Gothic philosophy. Sorry there!

The principle behind the garden's working was that the rock environment favored rock plants over grass and weeds. Simple! When I'd tendered the constant care of watering, grooming, and all manners of protection, grass and weeds, bugs and blight had gloried in it. And, of course, plants inappropriate for the area took hourly watching. The particular construction of different nooks gave particular advantages. For the construction system, if one can call it a system, was for differences. Some areas had rocks under the ground and close together, in some the rocks sat flush. Some, the most stable, had pockets with rock some 8″ above the soil and arranged so as to set the plants in a kind of rock box.This cooled the soil and kept out invading species.

There were east, south, and west facings, shaded areas and sun areas—dry areas and wet areas—areas of very lean soil and rich soil areas. Between these factors and the set of the rocks, hardly two places were alike. Yet, the garden was small.

Apparently, the balance of species numbers is delicate and shifting. Different years' conditions promote or diminish different species in cycle. By seed holdover and sometimes near root dormancy, more genetically different traits are held than would appear.

Small shrubs had been set in before I left, in hope that they might take over should the softer plants perish. Rather, the shrubs have behaved like the dwarfs they are, neatly sitting in place and growing more compact each year. A Dianthus, now 15 years old, is 4 inches across with a 1″ thick root that goes feet into the soil without tapering. A few species, a Dryas for instance, that were once rugs, have retarded to small, thick trunked tree-like plants a few inches high. A heather has moved out of its humus bed to flourish in hot sand

—I can't explain it. Lichens of a copper carbonate color cover the rocks now. Such a fine color!

Lean soil areas stayed the cleanest and were the most stable. If building again—which seems unlikely—I'll use the leanest and palest yellow subsoil for the top two feet. The plants will be mostly grown to size in a farmer's kind of garden with rows. Richer soil will be under the lean topping and some humus in the top mix near the plant when absolutely necessary. Any new rock garden would be designed to be carefree and stable. There might be many plants that could not be grown—but the number that could would be a great number.

The area that failed the most—well, failed totally—was where stones were flush to the ground and it was hot and dry. These were flat rocks and instead of keeping the soil cool, made it hot. They would reflect heat, too, upward towards the plant. Plants cooked. Summer rains would run off without wetting anything but an inch or so of soil in the crevices. Tough, coarse grass could creep in by mats that would cover the rock and allow the grass to grow on top while its roots might live in the damper soils several feet away.

Of course, pockets that tipped forward and were so situated that water did not flow in when it rained were barren. Any rock garden pamphlet will mention that the rocks need to be tipped backwards for the rain to flow in and down. I goofed there!

Watching a garden flow in its own natural time is rewarding. Let the rabbits, moles, toads, insects, and salamanders come. Let it be their home. It's another kind of garden. But, the truth is—just between you and me—not the other people—the truth is that if I get another rock garden, I know it won't really be different. I'll have to have anything called a "gem" and I'll weed night and day and do handsprings under the full moon, if that's what it takes to keep it.

Do we learn and profit? Let's put it this way; when spring comes I'm going to the Mojave for *Calochortus kennedyi*. The one I have doesn't like its conditions. If I can see what it likes, put some in a pot with its chosen soil and grow it on my balcony, I will have done something—just what, I'm not sure.

Perhaps, like the abandon rock garden that is on its own hook and running free according to its own nature, so am I. That's what I have done!

* * * * *

ANEMONE vs. *PULSATILLA* — Dr. Edgar T. Wherry, our beloved Editor Emeritus, asks that the following notice appear in the *Bulletin*:

In reference to the problem of *Anemone* vs. *Pulsatilla* discussed on page 160 of the October, 1972 ARGS *Bulletin,* when I was invited to check the names in the list for the 1971-1972 Seed Exchange, I felt that since it would be impractical to go into the details of the various quibbles, we should follow the nomenclatural usage favored in America as conveniently summarized in Bailey's *Hortus* Second. In this *Pulsatilla* is lumped with *Anemone.* Checking the plant names for the 1972-1973 Seed Exchange, I have continued to follow Bailey in most cases. However, since *Pulsatilla* is recognized as a genus in the current *Flora Europaea,* an exception may be made for it. The genus name used by the contributor of each lot of seed is being accepted without guaranteeing that they have made a proper choice between *Pulsatilla* and *Anemone.*

THE EAST, AT LAST

ROY DAVIDSON, *Seattle, Wash.*

What is any new place really like, especially one you've read about all your life? Even a travelog with sound does not convey the "feel" and the "smell," the reality. In several respects my first venture to the eastern part of the United States—to attend the national meeting of the ARGS in May—was a memorable occasion.

THE CANANDAIGUA MEETING — One is told that the eastern portion of our country is flat; flat, that is, except for some long, low ridges that pass for the "mountains." Well! No wonder some easterners are awed by our western mountains and frightened to death of our western roads, up, over, down and between! (Corkscrews and ski-jumps)! The hills that maintain the Finger Lakes (where we were) seem lamentable little rises, though sufficient to keep the water in this series of glacial depressions between them. The pleasant ride out to the Pre-Emption Road, following, in part, the Old Seneca Trail, gave a good opportunity on this lovely morning for visiting, making new friendships, arranging swaps, etc., and the Harkness' lovely old cobblestone, Greek revival mansion formed a most gracious and hospitable setting for further conversations over lunch on the expansive lawns.

The lectures of the two evening meetings were thoroughly enjoyable (and will be quite well treated elsewhere, so will here be only acknowledged). The show of many intriguing plants, some new to these eyes, was of particular interest: noted were Palomino's *Arenaria lithops,* Fosters' *Lewisia brachycalyx* (an unusual form), Deno's *Viola palmata,* and the best-in-show, Gehenio's *Asperula nitida* var. *puberula* (#1954) as being exceptional "musts."

NEW YORK TO NEW ENGLAND — I was quite unprepared for *Trillium grandiflorum,* so profuse the ground beneath hardwood forests was white with them. The Mohawk Valley was beautiful and I felt a little more at home in not being so "flat surrounded." The Great Gorge of the Hudson as it channels southward from the Adirondacks seemed even more reassuring, and the road-cuts showing bedded sedimentary rock gave understanding to the many photos I'd seen, and envied, of beautiful dry wall and flagstone gardens of great charm.

The dogwoods were just starting to bloom, and I learned a new respect for *Cornus florida;* here they were white, occasionally a tainted blush. We crossed a corner of Massachusetts into Connecticut limestones. How lovely the countryside, suddenly so very different, everything the pure, pale green of a soft Sunday in spring. There was a noticeable advance in the season as we moved southward and lost altitude a bit. Here the Trilliums were *T. erectum.* The dogwoods were in their glory and those that were buff? or nude? or pale apricot?—those intrigued me no end. Everyone agreed it to be a banner year for dogwoods. The only pink ones, up here, seemed to be dooryard or street trees, surely planted. The charming old villages sped by and we were soon in and out of places whose names touched memories of history books.

MILLSTREAM HOUSE — Linc and Timmy Foster. What a special privilege to be here at just this time, on this special day! The pastel coloring of the Phloxes on the limestone in the lower part of the garden near the house were like moonlight of all tints, falling with the gentle rain. And in this soft shower we climbed upward, along the millstream itself, through gardens of natural limestone, past the foundation of the old mill (dating as does everything else, to pre-revolutionary time, and rebuilt, now a planted wall of Lewisia, etc.), across the footbridge—with Phloxes watching from both sides—and up the hill to the many, many collections and projects (those not on limestone) that fill the owner's lives. Seedling plants of Rhododendron 'Cornell Pink' brightened several areas, all lovely clear "pinks," from pale, like the wannest of the Phloxes below, to one in a separate bed of "selections" that was a fine cherry-rose color, not quite cherry-red.

My window looked out onto the waterfall as the millstream dashed down off Canaan Mountain and it was somewhat reassuring to hear that it would be allowed to continue to do so, that the last decision to a proposed dam that would destroy this lovely place was a ten-year abatement, time for bureaucrats to regain their sensibilities.

STIRLING HOUSE — Dwight Ripley & Rupert Barneby. A ferryboat ride from New London, most famous of old whaling ports, across the sound to Long Island, and we were in this peaceful garden with a sedate old mansion on broad lawns with massed perennials in great sweeps under high trees and a focal point, a white (for reflected light) architectural structure of classical design, wherein plants from our western mountains and plains mingle harmoniously with those from other parts of the world, all beautifully happy. A tufa was being padded with Kelseyas and the alpine *Synthyris* were obviously prospering, but a tiny yellow annual violet stole my eye and my heart—from southern Spanish limestones, this is *Viola demetria.*

PALOMINO'S PAD — Paul and Dot. Photographs had told me this was a small, flat property and that it had a gem of a garden, burgeoning with *the creme de la creme.* It is that, and more. It made no difference that half of it was being torn up for rebuilding, the famous conifer collection being "thinned," the area to become a continuation of the very fine scree behind the garage. This is a project I look forward to seeing further. The alpine house (I was interested that so many eastern gardens used this garden adjunct) and several frames were overflowing with treasures from Czechoslovakia, New Zealand, western U. S. A., and of course, I was pleased to see *Synthyris* I'd sent, looking unbelievably well, as was each of the other occupants, many awaiting liberation to the scree, but patiently, content for now.

ALEX SUMMERS AND HOSTAS — Long Island is said to be entirely a flat sandbank, but this garden has a variety of terrain, the house on a rise, with slopes in all directions falling away through high-headed hardwoods to bog gardens at the bottom. Here in great masses to display their diversities and exceptional ornament, is what constitutes one of the world's noteworthy assemblages of Hostas, accompanied by many another shade subject, including painted ferns in some variety. An unusual dogwood tree here—and a credit

to *Cornus*—was *C.* 'Eddy's White Wonder', the hybrid between *C. florida* and western *C. nuttallii,* bred in Vancouver, B. C., just beginning to expand.

THE JERSEY PINE BARRENS — There is nothing on the West Coast to equal or compare to the vast sandy Atlantic barrens, "the seashore" which stretches from Cape Cod to the tip of Florida. The New Jersey section was made botanically famous by Harshberger's exceptional, detailed study published over fifty years ago. Although inhabited and consequently disturbed since colonial times, this is still a most fascinating floristic area, and all the many kinds of plant life seem to have managed survival. It is truly an "expanding" experience to stand in a pine forest that stretches as far as the eye can see—and no tree in it taller than waist-high to yourself! Some ridges are like that, with only pine; others will have taller pines with an understory of oak; watercourses are marked by tall *Chamaecyparis thyoides.* It is most surprising to find the "Pixie-moss" so ubiquitous, not at all "endangered looking." A roadside colony of incredibly "porcelain blue" *Viola pedata* carried me through this hot day serene, although we encountered all the choice subjects except the ground orchids, not yet emerged. *Hudsonia tomentosa,* growing best in the pure white, powdery sand, was a delightful surprise, not at all the "thready nothing" expected; tiny yellow "Roseling" flowers were beginning.

Possibly, the very young dune lands of southwest Oregon approximate to a degree what is a very immature stage of a pine barren on the Pacific Coast of our continent. Many similar species, from sundews, pitcher plants, ericads, lilies and orchids, the Xerophyllums (turkey beard and beargrass)—even pines themselves—occur in each.

DELAWARE VALLEY GARDENS — Generally the countryside in the Delaware Valley was reminiscent to me of Oregon, that part of the Willamette Valley with maples, ashes and oaks. We skirted north of Philadelphia to visit first the Lee Radens. The Raden garden is exceptional in several respects, most notable perhaps being the placement of the house itself, a contemporary glass-wall beauty, so that to its hilltop vantage the pale light from a large pond below is reflected and filtered through the leafage of the ash up the steep slopes into dappled rooms. A riot of delightful columbine mixtures surrounded a sheltered sitting terrace on the other side in a cosy sun-trap. What will doubtlessly come to be recognized as a "great" use of dwarf coniferous plants is arranged on the unconfined easterly end of the slope above the pond, with a green field (the boys' baseball diamond) and sky beyond. There is sufficient space, not only for individual development, but for additional specimens to be added as a collector's need arises.

OTHER GARDENS — Gevjan's is a mere acre of engrossing projects! With labor and love and tons of materials these are all coming to perfection; more screes and more dry walls, outcrops and pavings are planned, and the large front greensward is threatening to become an alpine lawn. Already several sprawly conifers are placed. The work completed is beautiful indeed and I shall anticipate seeing more. To the rear of the house, up a gentle rise and visible from dining areas, is a fine dwarf conifer grouping, the native woodlands backing it all, with the woods-flowers carpeting beneath. A large-

bracted bicolor dogwood at the front was glorious, white with broad pink border. Noted were very frequent good pinks in the wild dogwoods, and parkway plantings were breath-taking. I had read of the native *Chrysogonum virginianum,* like a tiny *Arnica,* and here it was, to take my fancy above all else; a much neglected, useful, slowly spreading plant that will give some flowers all summer. The alpine house here is getting a workout, both for germinating and growing on, and as such, supplying much of the plant material for the new developments.

Along an open, sunny woodland hillside at the studio home of Morris Berd, we found a most interesting "strolling garden" (American style), plants of all sorts, happy associations arranged with the artist's eye along a wide pathway which takes one to the top of the knoll, then loops back, just in time. A cool spot under a skirt of trees held a newly established clump of *Chiogenes (Gaultheria) hispidula.* To me, the big attraction was a work area inside what had been a barnyard stone wall, its crevices ferny with growth. I'd been admiring the enormous old stone barns about the immediate countryside. Wish I had one!

The garden of Marnie and Bill Flook is in a secluded, rolling wood of lovely old trees, where sunny slopes are turning to little outcrop plantings, with Kalmias, Azaleas, dwarf conifers and other fine shrubs happily blending them into the well-established landscape. Here, another alpine house was put to good use, its bounties spread through the new areas.

A fine little outcrop garden graces the rear of the Carl Grieshaber home. To a westerner, it is not readily apparent what degree of preparation is necessary in order to grow alpines successfully in the hot-humid coastal summer; all the gardens visited showed ingenuity at devising necessary air circulation and soil drainage. Here we noted a most unusual broad-leaf, dwarf, weeping Salix, identity unknown. This same gardener supervises the extensive rock garden at Longwood.

LONGWOOD GARDENS — This garden, gift of the Duponts to the American people is, of course, one of the world's exceptional gardens and one I had been anticipating for a long time; but one could go there weekly for years and never see it all. It was all I had anticipated, and more, I hope to go back there frequently. The rock garden was our magnet in this great series of fine gardens, though we were shown the major attractions (by auto to telescope time) and even looked quickly at the topiary and Italian gardens and the fabulous battery of conservatories, open the year round; admission free.

The rock garden occupies a westerly slope, an acre or more under very high trees. Stones of enormous size (all moved in) were required to be meaningful in an area of such size. A very large pond is at the base, from a huge cascade, and one looks toward a picturesque carillon tower in the heather garden opposite on another slope. This is, of course, all in the grand scale, conceived in a romantic period, but under present management the rock garden is a living tribute to the art. It is sad to hear that any plant material is fair game to collectors; thus those seen are not always what one would wish, nor what Longwood would like to see. However, there is no lack of interest, and it is not surprising that this garden is finding more and more popularity, that since it was built the walkways (skillfully contrived) have become increasing-

ly more used and more crowded, to the point they are now felt to be inadequate for the numbers who visit.

We are not quite into the use of dwarf conifers out west, at least not in the manner eastern gardeners employ. The Longwood collection is displayed magnificently in a series of beds on an expanse of rolling turf, the beds themselves dressed with reddish brown stone chips rolled down very flat, forming a very pleasant harmony with lawn and feature subject. Skillfully employed, these many varied sorts of manageable-size conifers give a full calendar of usefulness, alone (as ordinarily we see them here in the East), or infrequently, combined. The latter takes a bit of doing due to the strong dominance of conifer, *per se,* each of which seems *prima donna,* in its own spotlight. A collection together can be symphonic or excitingly disharmonious, but in all, sufficient unto itself; any companionate swain had best be very low and very, very bluff, or else massive and very unobtrusive otherwise.

Of special interest to me was the "eye of water", perhaps best described as a subterranean fountain, with all the simple fascination of a hearth fire. A vast amount of water is forced upward from the earth under very great pressure, and just as it wells through an opening in a large, flat metal disk precisely at the surface, creates its own endless, subtle excitement and mesmerizing design, then flows away to be used to play fountains in the formal gardens, after falling down the cascade to the pond of the rock garden.

In all it was a short, busy week, one I should like to repeat often. I shall have to return frequently, now that my western ways have been amended.

REQUESTS BY MEMBERS

Will the members who are able to fulfill any of the requests below please contact directly the person making the request!

Mr. James R. Le Comte, No. 2 R. D. Ashburton, New Zealand, would like to contact members in the U.S.A. who collect *Calochortus* with a view to exchanging seed and/or bulbs for New Zealand native plants. Please give some details when writing. All letters answered.

Will anyone who has seed or plants of *Lewisia cotyledon* var. *howellii* and *L. tweedyi* for sale or exchange please contact Mrs. C. F. Shank, Shoshone, Idaho 83352. She has seed of both the white and pink color forms of *Lewisia rediviva* to exchange.

Mrs. H. R. McNeal would appreciate seed of any western *Lithospermum* species. Her address is R. R. 4, Five Mile Badger Road, Fairbanks, Alaska 99701.

Gardening books relating to plants from high elevations (8,000 feet and up) wanted by Mr. John D. Farr, P. O. Box 944, Breckenridge, Colo. 80424. Names of books, lists or sources will be appreciated.

Does anyone know where in the United States the book *Die Hohe Tatra, Blumen, Baume, Bergen,* by Oldrich Stanek, can be obtained. Word has been

received from Czechoslovakia that this book is out of print. Information about possible sources is wanted by Mrs. J. N. Wood, Assistant Librarian of the Massachusetts Horticultural Society, 300 Massachusetts Avenue, Boston, Mass. 02115.

Please send your requests for seed, plants, books, slides and information 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 not possible to acknowledge receipt of requests. We would like to hear the results, if any, from those who have utilized the "Requests by Members" column in the past.

A note from Sallie Allen — If your request has not appeared in the *Bulletin* within a reasonable time, please write again. It has come to her attention that one request made failed to reach her and there may be others!

PENSTEMON FIELD IDENTIFIER

KENNETH AND ROBIN LODEWICK, *Eugene, Oregon*

The *Bulletin* of the American Penstemon Society has been publishing a Penstemon Field Identifier in parts for the past several years. This provides a field identification system for amateur use based on drawings. It is planned to eventually cover all *Penstemon* species, filling a gap, since at present there is no comprehensive publication for the genus.

The presentation is largely pictorial, with scale drawings of leaves, flowers, anthers, sterile stamens, and in some cases, sepals. An added feature for those collecting seeds is the drawings of seeds, which are also a help in identifying species.

So far, the areas covered are the Pacific Northwest (Columbia River drainage) in Part 1, and California, Alaska, and Northeast Asia (including northern Japan) in Part 2.

A location key is to be provided, but will appear about a year after the publication of the geographic sections.

The work is being done by Kenneth and Robin Lodewick, members of the APS and the ARGS. They plan to have a Nevada and Utah section ready in 1973, along with keys for the previous two sections.

The guide appears on sheets which can be put in a small notebook for carrrying in the field. Members of the Northwest group of the APS recently found that it really was meant to be used that way, when the Lodewicks identified plants found on the group's annual meeting in the Wallowa Mountains of Oregon. (No one else had brought their "Field Identifiers" into the field; including the editor of the ARGS *Bulletin*).

Copies of the sections available may be obtained from the Lodewicks for 50 cents per section (to cover printing costs) plus postage of about 24 cents per section. Their address is 2526 University Street, Eugene, Oregon 97403.

What kind of a field guide can help a non-botanist the way Peterson's bird guides help a non-ornithologist? None we know of yet, but we are trying to work out an identifier that will do the job for this one genus, the Penstemons.

When the senior member of this team (Ken) first joined the American Penstemon Society in 1962 and began going on the annual Northwest group meetings, he felt the need for a pocket-sized guide. Since none existed, he finally made one of his own, in 1969. It consisted of a few sheets of tracings from illustrations in botany books, done rather freehand. The junior member (Robin) said, "If you want to do the notebook over, *I'll* do the drawings." Alas! She did not know that Penstemons were one of the most complex and varied genera, with about 275 species (depending on whether a "splitter" or a "lumper" is listing them), many varieties, and color variations in each one.

The *Bulletin* of the American Penstemon Society has now published two sections of our Penstemon Field Identifier: No. 1, for the Pacific Northwest in 1971 and No. 2, in 1972 for California, Alaska, and the one non-American species, *P. iwabukaro,* from Japan and Siberia. We are now working on the third section covering Nevada and Utah, and on a location key that will make the guide easier to use in specific areas.

How does one go about making such a guide? Because we are amateurs and made it first of all to help ourselves, we knew what to avoid. We knew that botanical keys would not do. They vary with different authorities, they often depend on features such as seed pods which are not always available, and they are simply too difficult to use. Not to speak of the vocabulary, which requires a different glossary for each author. Often we have found the quickest way to locate a strange plant was to flip through botanical book pages looking at the drawings, especially drawings of leaves, until something similar shows up. So our first question was settled, the guide sheets had to be a size to fold into a pocket notebook.

A year's use had made it obvious that leaf shape, being the first thing one looked for, should be at the outside edge. Next in importance came flower shape and arrangement. Some words would be necessary, for what the drawings could not show; color, texture, height and range. We would try to have all parts of the plant presented in the same positions, at the same scale, if possible (life size, half or double life size). It was hard for the artist to give up those lovely nodding trumpet shapes turned in all directions, but to compare flowers of two different species, you must have them lined up alike. Then, of course, for penstemon identification, the sterile stamen and anther shapes are necessary. (If only the people who mount herbarium specimens would realize this, and open out one flower on each sheet. Usually one has to search for a corolla that has been insect-eaten, or crushed, to get this information).

A special feature of the guide is a rendering of the seeds, which has not been done before. Lavendeur Boyrie of Portland, Oregon, one of the identification experts of the Society, has found seeds to be an important aid. She developed a beautifully arranged seed bank from those others had sent her, from the Society's Seed Exchange, and from her own collecting. This bank she loaned to us for the duration of the project.

What a time we had with a new 23-40 microscope and the little seed boxes! The seeds vary in shape (basically a "potato chip" or "turtle" shape); in casing (thick, thin, transparent, opaque, pebbly, veined, smooth); in rims (thick, thin, bulgy, ruffled) and in color. They also vary within species. However, it is possible to put down representative shapes that at least tell "what species this is not" and at most really identify.

OREGON

Willamette Valley & Coast Range

1 *cardwellii* (Coast Range peaks)
1 *deustus* (Salt Cr, E Lane Co.)
1 *nemerosus* (Coast Range peaks)
1 *ovatus* (Columbia River)
1 *rattanii* (Coast Mts, Lane Co. S)
1 *serrulatus* (peaks, Lane Co. N)

Cascade Mts.- West Side

1 *cardwellii*
1 *davidsonii*
1 *euglaucus* (Lane Co. N)
1 *nemerosus*
1 *ovatus*
1 *procerus brachyanthus*
1 *rupicola*
1 *serrulatus* (Lane Co. N)

Cascade Mts.- East Side

1 *cinicola* (Three Sisters S).
1 *davidsonii*
1 *euglaucus*
1 *fruticosus*
1 *glandulosus*
1 *humilis*
1 *peckii* (Mt Hood to Three Sisters)
1 *richardsonii*
1 *rupicola*
1 *speciosus*
1 *subserratus* (Hood River Co.)

Columbia River

1 *accuminatus* (E of Cascade Mts)
1 *barrettiae* (gorge)
1 *richardsonii*
1 *ovatus*

OREGON

Central Oregon

1 *attenuatus*
1 *deustus*
1 *eriantherus*
1 *fruticosus*
1 *humilis*
1 *laetus roeslii*
1 *rydbergii*

Southwest Oregon

2 *anguineus*
2 *azureus*
2 *gracilentus*
2 *heterophyllus*
2 *lemmonii*
2 *newberryi berryi*
2 *parvulus*
1 *rattanii* (Lane Co. S)
1 *rupicola*

Southeast Oregon

2 *cusickii*
1 *davisonii* (Steens Mt.)
1 *fruticosus*
1 *gairdnerii*
2 *glaucinus* (Campbell Lake, Lake Co.)
2 *miser*
2 *pratensis*
1 *seorsus*

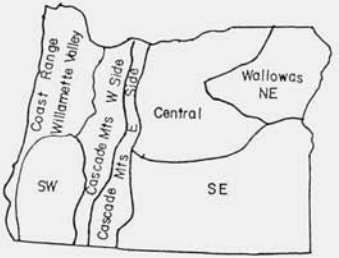
Wallowas - Northeast Oregon

1 *attenuatus*
1 *deustus*
1 *elegantulus*
1 *eriantherus*
1 *fruticosus*

OREGON

Wallowas-Northeast Oregon (cont.)

1 *gairdneri*
1 *globosus*
1 *humilis*
1 *payettensis*
1 *pennellianus*
1 *rydbergii*
1 *spatulatus*
1 *speciosus*
1 *triphyllus*
1 *venustus*
1 *glandulosus*
1 *wilcoxii*



SPECIES, HEIGHT, HABIT	SEED	ANTHERS FLOWERS	LEAVES & STEMS
procerus 2" to 16" Slender stems Tufted Dry meadows & slopes, foothills to above timberline. Alaska, Yukon, Sask. to Cal., Colo.	1/2 x 3/4mm 14x tooth, lemon slice yellow on black knobby ssp. brachyanthus pearly 1x2mm N=8, 16	20x deep blue-purple, off-white, pink 2x several very dense verticillasters 2x var. formosus	glabrous 1/2x formosus X procerus
pruinosus 4" to 16" Tufted Open, rocky valleys, plains, mod. elev. Wyo., SW Mont., E Idaho, N Nev., N Utah, N Colo.	3/4x1mm 7x lemon slice orange tan slightly pearly thick rim N=8	15x 2x 2x deep blue to lavender throat pale compact few-flowered discrete verticillasters	glandular hirsute 1/2x C
pumilis less than 8" Prostrate Dry, open, low elev. Salmon River S to Snake River plains	7x 1x2mm bone, liferaft light yellow on shiny black thick rim	12x 1.5x blue limb purplish tube one to several very approximate small verticillasters	densly cinereous puberulent 1/2x C
radicosus 6" to 16" Slender stems Tufted Dry, open plains, foothills, mod. elev. Wyo., SW Mont., E Idaho, N Nev., N Utah, N Colo.	7x 1x1 1/2mm salt cellar off white on reddish black knobs	15x 1.5x blue purple ventrally whitish several approximate, loose, few-flowered verticillasters	finely hirsute 1/2x C
richardsonii 8" to 32" Slender brittle stems Shrubby Cliffs, crevices, dry, rocky, open, low elev. E of Cascade Mts. Okanogan Valley to S Ore. E to Wawawai, Wash. also Columbia River gorge	7x 1x1 1/2mm lemon slice, lady bug dark orange on dark brown knobs N=8	8x bright lavender mixed panicle	var. dentatus 1/2x puberulent var. richardsonii
rupicola 4" Mat Cliffs, ledges, rocky slopes, high elev. Columbia River gorge; Kittitas Co., Wash. to N Cal. in Cascade & Siskiyou Mts	7x 1x1/2mm potato chip, box orange to transparent on red brown N=8	8x pink, red, pinkish lavender, white few-flowered compact raceme	1/2x glaucous, glabrous thick, firm

With leaves and flowers the problem is different. At first we regarded our job as one of collation; selecting material from different sources, changing it to meet our needs and putting it on the sheets. For our first section what we regard as the best plant book in the United States was available: Hitchcock's *Vascular Plants of the Pacific Northwest*. Its special feature is the splendid drawings of each species listed, by Jeanne R. Janish. For California there was Abram's *Illustrated Flora of the Pacific Coast* (likewise with illustrations by the same artist) and Peck's *A Manual of the Higher Plants of Oregon* (with no illustrations). For Alaska there is Hulten and for Japan—well, Roy Davidson loaned us a Japanese text, which a librarian friend, Miyako Takeno, translated, and another member sent us a colored postcard. After this, each area will have fewer source books, and poorer ones. In fact, we are looking for recommendations on Penstemon illustrations from anyone who finds them.

Luckily, the University of Oregon in Eugene, where we live, has a small but good herbarium. The Academy of Sciences in San Francisco and the University of California at Berkeley have large and very good herbariums, which they kindly open to us. Members of the Penstemon Society also send us fresh and pressed specimens, and we have raised some of the species we lacked, in our garden.

As illustrator, Robin uses whatever help she can get, starting with other people's illustrations in books, going on to photographs, pressed and live plants, and finally checking each set of drawings against herbarium specimens. It has been fascinating. Also hard on the eyes! Some of the work has to be done with one eye on the magnifying glass, and the other on the pencil.

Often, too, there is a problem of visualizing how a certain specimen will look if turned to the view needed. Sometimes the only sight of an anther is through the semi-transparent tube of a dried corolla, or one has to guess how ripe pollen sacs are, as they may often widen with age. The comfort is that if there are mistakes, people will tell us about them. After all, the purpose of the field guide is to be simple, leaving out the fine points. If it helps the user find the correct species in a professional botany book, it has served its purpose.

Of course, there is a great deal of work done by Ken before the drawings are begun. Using flower guides and the publications of the American Penstemon Society, he lists the species and available information about them. Then he starts to find out where to get the not readily available information. Besides planning, research, correspondence, field card maintenance, species identification and doubly checking the visual work, he is also in charge of text. A description has to be worked out for each species, and added to the inked sheets of illustrations. From now on this text is going to be lettered by Ken; lettering fits better and prints better than typing.

What we hope for finally is to have the guide actually work. Well, we went into the Wallowa Mountains this July with the other American Penstemon Society penstemoniacs. There were nine Penstemons we had never seen before. Out came the guide—and what's that one? By gum, it's *Penstemon venustus*—look at the hairs on the edges of the petals! Now, if only everyone else who uses the guide finds that it helps—good!

As to whether this type of guide will work for other genera, we do not know. It will never take the place of the color-keyed booklet for beginners, or of the big albums of color photographs. It is not likely to be used by profes-

sional botanists, at least not by those that know their "scrophs." But possibly, if other amateur botanists find that the field guide works for Penstemons, they may want to try something similar for other plants.

OMNIUM-GATHERUM

As we are aware, each year takes its toll as our elder members drop from the rolls. If our Society is to grow and prosper, their places must be taken by new members in the more youthful brackets. Presently, it is impossible by means of scanning the membership lists to arrive at any conclusions as to age groups. However, the Society will remain healthy if a fair number of those joining each year are youthful; boys and girls with a budding interest in plants, a desire to grow them, a fondness for forest and mountain trails—all of them pleasurable pathways to the joys of rock gardening. In the far years to come, it will be these youthful members who will guide the Society.

It is with a great pleasure that the Northwestern Chapter of the ARGS reports a growing number of young people, many of them young married couples, who join and soon throw themselves into the affairs of the chapter. Soon they are putting on programs, leading field trips, serving on committees, holding office, and otherwise brightening our monthly meetings with their enthusiasm and lightheartedness—and when they speak of the plants that interest them, they use botanical nomenclature. It is certain that these youthful members are future plantsmen, nurserymen, explorers and writers. It is hoped that the other chapters are being blessed with an influx of the young.

What is the greatest service a society such as the American Rock Garden Society can perform for its members? Is it the publication of the *Bulletin?* No, though it helps. Is it the operation of the Seed Exchange, or the Slide Collection? No, again, though they likewise help. Is it the local exchange of plants, cuttings, gardening knowledge, the attending of chapter meetings, garden visits, field trips, etc.? No, though this is getting closer. What is it then? It is the stimulation of communication throughout the world between people with a common interest; people scattered at great distances who may never meet, people who have no common language unless it be that of botanical nomenclature.

The enthusiasm of these people has many key words—alpines, rock chips, rock gardens, culture, soil mix, hardiness, pH, screes, propagation, miniatures, hybrids, and collecting (within limits, it is hoped). And its manifestations are many; while one may weary himself or herself (wholesomely, of course) in establishing and maintaining a rock garden, another will grow lovely plants for profit, fulfilling an honest need. Some other will devote his energies to plant exploration or to the study and classification of plants; still others to writing about them—all of these are important. But should each of these go his own way alone and unsung, where would be the advantage?

Let him join the ARGS, or a kindred society for that matter, and what happens? He becomes one of the group. He talks to people with like interests; he writes of his own experiences, in letters or for publication; he reads of the experiences of others. He works in his own garden with renewed vigor; he visits other gardens and shows his own. He attends meetings, both local and

national, even international. He travels to near and far places to become acquainted with plants in their own habitat and to make friends, and as a matter of course, he increases correspondence. His knowledge becomes a blend of what he has learned for himself, what others have conveyed to him in their letters and in the publications of his own society, and of like societies; in books he owns or borrows from friends and libraries. He develops close friendships and cherishes them. He not only has friends, he is a friend—he shares and is shared with. He moves with nature and uses nature as a guide and a friend that should and must be protected. He shares his love of nature and as his knowledge grows, so does his delight in life.

Because of these societies the world is crisscrossed with lines of communication between members. Ideas, knowledge, lore, friendliness and love weave a net of communication that would astound non-members. As it is now, through the members of the ARGS, communication between the people of the world is being served and understanding is in the ascendancy. This may go on into the unforeseen future, because these people love plants, especially alpines, grow them, seek them out, talk and write about them and gather together in a society which will further their desire to share their enthusiasm with kindred souls. It is a far step toward world peace; and little plants show them the way.

HOW TO MULTIPLY THE *SAXIFRAGA SECT.* KABSCHIA

VLADIMIR CHALOUPECKY, *Prague, Czechoslovakia*

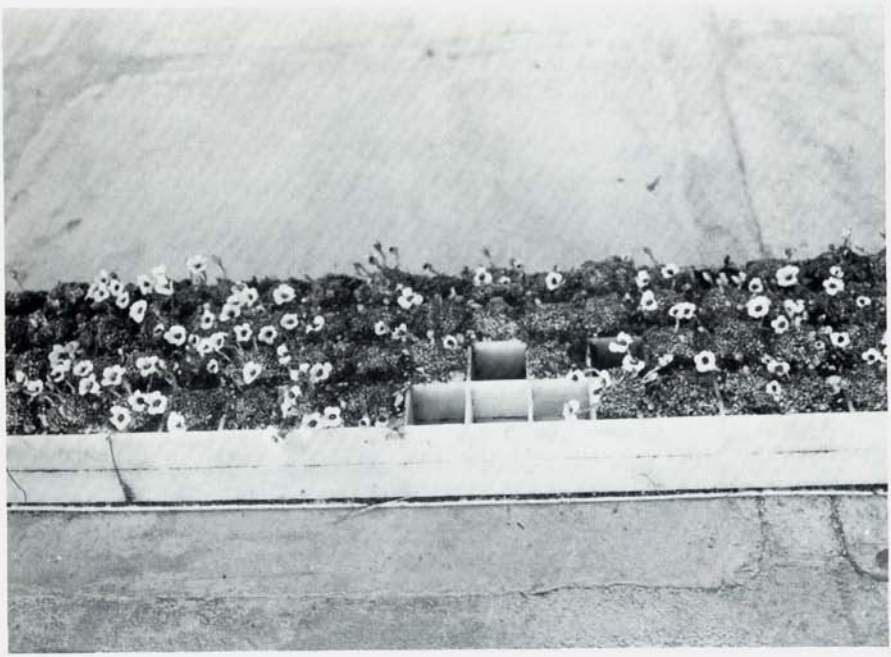
This spring I have seen an excellent culture of *Saxifraga* by Mr. Frantisek Holenka in Prague. The members of the A.R.G.S. group who visited Czechoslovakia met him and visited his garden.

The first step of Mr. Holenka's method, which seems to me to be excellent, is dividing the saxifrages after blooming—not later than September. The single rosettes are set in a box filled with the following mixture: ⅓ sand, ⅓ leaf mold, and ⅓ peat. The soil is covered with ½ inch of sand and divided by strips of glass or plastic into fields about ¾ inch wide. Cuttings will root in a shaded place or in the alpine house in six months and are then picked up and replanted into a plastic frame with one inch squares, two inches deep. The planting mixture consists of ⅓ loam, ⅓ sand, and ⅓ peat. The lattice has a detachable plastic bottom perforated under each square hole and due to the size (approx. 4 inches by 21 inches) the whole box is readily movable. After about a year the plants will fill the space in the hole with fine roots and can be easily lifted with the aid of an old dinner fork and planted in the rock garden.

The condition of the plants is excellent as may be seen from the pictures of the two-year old cuttings of *Saxifraga lilacina.*

* * * * *

A MEMBER OF LONG STANDING PASSES — Word has been received of the death of Earle Farnsworth, of New York City, at the age of 79. He had been a member of the ARGS since 1954. In the days when the ARGS participated in the New York Flower Show, Mr. Farnsworth is reported to have been active in setting up the Society's exhibits, which invariably drew wide attention and resulted undoubtedly in stimulating the Society's growth.



Two-year-old-cuttings of *Saxifraga lilacina.*

Mr. Frantisek Holenka transplanting the rooted cuttings to the "lattice."
Dr. Vladimir Chaloupecky

HUCKLEBERRY CREEK REVISITED

GUS N. ARNESON, *Seattle, Wash.*

Fifty years ago, in the summer of 1922, I was one of a crew building a trail up Huckleberry Creek, a boisterous stream that originates in the alpine parks north of Mt. Rainier and tumbles through a magnificent forest into the White River. Much of my fondness for forests and mountains stems, I believe, from that memorable summer.

It was my first experience of living in the woods for a protracted period of time and I liked it. I was eager to learn and practice woodsmanship; was awed by the mighty trees and reveled in the luxurious carpeting of mosses, ferns, and flowers; and spent my free time climbing to the tops of the highest

A section of the forest carpet including: Bunchberry, *Cornus canadensis,* Foam flower, *Tiarella trifolia,* Star-flowered Solomon's Seal, *Smilacina stellata,* and the foliage of Twin-flower, *Linnaea borealis.*

Gus N. Arneson

hills. I collected general impressions but not specific information. I knew the names of only a few of the plants, mostly those that I had known from childhood, and do not recall that I tried to learn the names of the others. I "yielded myself to the perfect whole" and dreamed dreams of becoming a forester.

Revisiting Huckleberry Creek this summer, and noting that during the passage of half a century there had been many changes, I marveled that there is so much that has not changed. The forest floor, for example, is still spread with its lovely carpet. Trilliums, yellow Violets, Starflowers, Solomon's Seal, Bunchberry, Queen's Cup, Twin-flower, and Indian Paint Brush; Elkhorn Moss; Sword, Maidenhair, Deer and Licorice Ferns; red and blue Huckleberries, and many more—all were there, still wild and charming.

I became aware, however, of a change in me. Fifty years ago the magnificence of the forest, the charm of the ground-cover, and the unifying presence of the rushing stream left me, or so I thought, only general impressions. Now, each plant encountered reminded me of another of its kind that I had seen here before. Seen, not *some place,* but here in this particular spot. Perhaps while, as a youth, I was captivated by the attractiveness of the whole, impressions of the parts, like latent images on exposed photo film, were stored in my subconscious mind. It appears that my eyes, during that exciting summer, had seen and registered more detail than I had recalled.

Editor's Note — To satisfy the readers who are botanically minded, the editor is certain that Mr. Arneson will not object to here listing the botanical names of the plants mentioned. Following is such a list in the same order as the common names appear above:

Trillium ovatum, Viola glabella and *V. sempervirens, Trientalis latifolia, Smilacina stellata, Cornus canadensis, Clintonia uniflora, Linnaea borealis, Castilleja* sp., *Lycopodium clavatum, Polystichum munitum, Adiantum pedatum, Blechnum spicant, Polypodium vulgare, Vaccinium parvifolium and V. ovatum.*

* * * * *

SEED GERMINATION OF ROCK GARDEN PLANTS — To those members who are interested in obtaining this ARGS publication by Dara Emery, please write to Mr. Milton S. Mulloy, our secretary, whose address is 90 Pierpont Road, Waterbury, Conn. 06705. He has a good supply and the price is $1.00 per copy.

* * * * *

REMEMBER 1976 — PLAN NOW — LOOK FORWARD! — Each year intervening will bring more detailed information, more challenges, more opportunities for participation, in planning, in execution so that this conference may be a thrilling experience for a great number of rock gardeners no matter how scattered they are over the face of this earth. SEATTLE, VICTORIA, PORTLAND AND VANCOUVER—cities that are dissimilar yet each with its own beauty, each set in gorgeous surroundings—mountains, inland waterways and a thousand miles of untouched sea shore where one watches the sunset out over the Pacific Ocean and wonders about the Orient over the horizon. Why go on? Come in 1976 and see for yourself.

ALPINES FROM SEED

ELEANOR BRINCKERHOFF, *Georgetown, Conn.*

SOWING THE SEED

Equipment and materials required:

3″ and 4″ plastic pots and labels—one for each packet of seed.
Pea gravel or other small stones for pot drainage.
Soil sifter of ¼″ wire mesh.
Seed-sowing "soil"—Compost from general compost heap, run through ¼″ sifter and thoroughly mixed with equal measure of gritty sand.
Large shallow pan and foil to cover.
Granite grit and limestone grit for top-dressing.
Pan or small tub in which to soak pots of seeds.
Cold frame of some sort with covers of window screening.

IMPORTANT to plan ahead. Since all outdoors will be frozen when seeds arrive in Jan. and Feb., collect all necessary supplies in Nov. and store in basement or other frost-free place. Store compost-sand mixture in GI cans until needed.

PROCEDURE

1. When seed arrives, prepare a batch of soil by steam-cooking it as follows: Place compost-sand mixture in large shallow pan to depth of about 4″, being sure the mixture is slightly damp. Add a little water if necessary. Seal with foil and place in a 300° oven for 1½ hours. Allow to cool in the oven with door shut. Prepare only as much soil as will be used in 4 or 5 days.
2. Make out a label for each packet of seeds, stating complete name, initials of source and date of sowing.
3. When ready to sow the seeds, place gravel in pot to a depth of about ½″ in 3″ pot and 1″ in 4″ pot.
4. Fill the pot with soil to within about ½″ of the rim, pressing it down firmly.
5. Spread a thin layer of soil evenly over the surface to form the seedbed.
6. Place label. Sprinkle the seed thinly and as evenly as possible.
7. Very carefully sprinkle a little more soil over the seed, *never* any deeper than the thickness of the seed. Fine seed such as saxifrages, calceolaria, some of the campanulas, etc., should *not* have this final layer of soil.
8. Top-dress the pot with a layer of granite grit, thick enough so that you can't see the soil. Substitute limestone grit for lime-loving species.
9. Set the pots in a pan of water just until moisture shows on top. Remove and drain.
10. Keep the pots indoors for several hours or overnight. Then place them outdoors and cover with window screening to prevent washing out from heavy rains.

No further attention is required until the sun begins to warm up in

March. From then on, check often to be sure the pots are constantly moist. They must not dry out for even a brief period, but also be careful not to overwater.

Germination will begin in late March. Continue with careful watering . . . forever.

When the seedlings are big enough to handle, usually when 2 to 4 leaves have formed, prick them into flats or individual pots. See below.

Hold ungerminated seed pots over for at least one more year.

POTTING ON

Equipment and materials required:

Pots and/or flats
Strong labels and marker
Gravel for drainage and top-dressing
Loam
Compost
Sand
Soil sifter of ½"wire mesh
Limestone chips
Peat Moss
Bone meal
Tub for mixing soils
Soak pan
Seaborn or Sturdee or Fish, etc.
Coldframe of some sort with shader

Prepare flats or pots as in steps 3 and 4 above, using a suitable soil mixture for each species. A few examples:

(1) For general assortment of rock plants—campanulas, dianthus, draba, etc.
1 part loam
1 part compost
1 part gritty sand
½ part gravel*
sprinkling of bone meal

(2) For woodlanders, certain primula, etc.
1 part loam
2 parts compost
2 parts sand*
½ part peat moss
sprinkling of bone meal

(3) For high alpine and other difficult plants, such as aretian androsaces, penstemons, etc.
1 part loam
1 part compost
2 parts gritty sand
2 parts gravel
sprinkling of bone meal

(4) For alpine auriculas, *Gentiana verna* . . .
1 part loam
2 parts compost
1 part gritty sand
1 part gravel
1 part limestone chips
sprinkling of bone meal

GENERAL INSTRUCTIONS and some helpful hints on transplanting:

Avoid transplanting seedlings during hot, muggy July.

Withhold water from the seedlings for a day or two before pricking-out. Tiny roots tease apart easily when on the dry side.

Have all necessary materials on hand when you begin transplanting.

Work in the shade, out of wind and bright sun.

Remove from the seed pot only as many seedlings at a time as you can replant within a few minutes. They must not be allowed to dry at all.

Soil for transplanting must be slightly moist so that it can be gently firmed around the roots of the transplants. When firming, apply pressure more from side than from top.

When lining out seedlings in flats, space them in accordance with growth

habit. For example, 2″ apart for vigorous arabis, less for saxifrage.

Top-dress pots or flats with gravel to retain moisture, provide cooler root run, and to prevent plants from choking on mud splatters.

Water transplants by setting flat or pot in soak pan. Liquid fertilizer can be added such as Seaborn or Fish, 1 tablespoon per gallon of water. When surface of pot shows moisture, remove it. Drain. Again, gently firm soil surface around each seedling. Alpines want to be planted firmly.

Plant in cold frame or other protected place.

Protect from sun and wind for 3 or 4 days and then only shade from midday sun and pelting rains. Window screening is good as it admits rain gently and air circulates through it. Shade-loving plants, of course, need more shade at all times.

Water seedlings whenever necessary, using watering can or hose with water-breaker, still being careful not to overwater. It's important to keep the seedlings growing steadily if they are going to become strong, healthy mature plants.

By late summer or early Sept., the seedlings will be big enough to go into the garden.

*Limestone chips are substituted for part of the sand or gravel for lime-loving species.

* * * * *

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1. Title of Publication: American Rock Garden Society Bulletin. 2. Date of Filing: September 18, 1972. 3. Frequency of Issue: Quarterly. 4. Location of Known Office of Publication: 90 Pierpont Road, Waterbury, CT 06705. 5. Location of the Headquarters or General Business Offices of the Publishers: Same as above. 6. Names and Addresses of Publisher and Editor: American Rock Garden Society, 90 Pierpont Road, Waterbury, CT 06705—Editor: Albert M. Sutton, 9608 26th Ave. N.W., Seattle, WA 98117. 7. Owner: American Rock Garden Society, 90 Pierpont Road, Waterbury, CT 06705. There are no stockholders. 8. Known Bondholders, Mortgagees and other Security Holders owning or holding 1% or more of Total Amount of Bonds, Mortgages or Other Securities: None. 9. Statement signed by Milton S. Mulloy, Secretary. 10. Not Applicable.

11. A: Total number of copies printed averaged 2063 each issue during preceding 12 months and was 2025 for issue nearest to filing date.
B: Paid circulation by mail subscriptions averaged 1874 each issue during preceding 12 months and was 1889 for issue nearest to filing date.
C: Total Paid Circulation: Same as above.
D: Free Distribution: None.
E: Total Distribution: Same as B.
F: Office Use, Left-Over, Unaccounted, etc.: Averaged 189 each issue for preceding 12 months and was 136 for issue nearest to filing date.
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