

BULLETIN

of the

AMERICAN

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Vol. 19

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No. 4

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C. R. Worth, Editor

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ROCK PLANTS FOR THE SOUTHEASTERN REGION

RALPH BENNETT, *Arlington, Va.*

DR. WORTH has asked me to write an article for beginners, on rock plants that are both desirable and easy in the Washington, D. C., area and hence presumably through much of the South. If I write for beginners, much of what I say will necessarily be "old stuff" to experienced rock gardeners. So my task is to make this article instructive to beginners and yet not too boring to the others.

My remarks will be applicable to that part of the country starting with the Nation's capital and going south to North Carolina and west to the Mississippi. Much of it may also be applicable to the states south of these. How much it may be, I do not know, since we read very few articles by people in that part of the country. However, from what I have seen in my travels, I see no reason why this article should not apply throughout most of the southeastern quarter of the country.

My first bit of advice to beginning rock gardeners in this region is to somehow find the courage to accept advice—something that is hard to do—and not insist on ignoring advice and learning everything the hard way. Gardening in this part of the country is very different from gardening in the states north of here. People who move down here from the North are almost never willing to accept this fact. I have seen countless failures with rock plants that grow easily in New York, and the gardeners were always trying to blame something else besides the climate, usually themselves, and persisting in their heartbreaking struggle against nature. The climate of Virginia and to the south is as different ecologically from the climate of Pennsylvania as if they were a thousand miles apart instead of a couple hundred miles. Many of the plants that Doretta Klaber grows so happily in her garden are as hopeless for me as those that Claude Barr enjoys in South Dakota. But if a gardener is willing to be realistic instead of dreamy-eyed, he can have just as fascinating a rock garden here as anywhere, even though he may have to forego some of the traditional plants that writers in this Bulletin make us think of as essential to a real rock garden.

Twenty years of intensive rock gardening in Arlington, a suburb of Washington, have gradually built up in me a system which I think is logical and therefore worthy of consideration by beginners, and even by some who are not beginners. My system consists of two equally important, complementary principles. (1) Put your main dependence on plants native to the United States east of the Mississippi. (2) Experiment to your heart's content with rock plants from other parts of the world, but always with the idea that you are experimenting. Take it for granted that many will fail. Resolve to enjoy those that succeed and to dismiss the failures from your mind.

If you adopt this philosophy, you will have plenty of time for experimenting with plants that are exotic to the Southeast. Why? Because those that are native will stay with you and not demand much of your attention, thus leaving you free to expend most of your time on the exotics. The point is, Don't waste most of your time and space on exotics that may or may not give you any bloom. Give most of your space to natives, which will be sure to bloom, and then you won't be so disappointed when the exotics do not.

In my garden and that of Mrs. R. H. Wilson I have seen growing happily in Arlington most of the rock plants that you find mentioned in the articles in this Bulletin. But most of them are just memories now. They stay for a while, but something takes them off after a few years. They just can't take our climate. If you don't mind constant fussing and reordering or growing from seed, you can grow almost any rock plant here for a while. Some may never bloom, like the lovely Asiatic gentians that Ed Totten presented to me. They may have fairly good foliage, like the western shrubby penstemons, or even a few flowers. But if you don't let them take up too much space to the exclusion of dependable plants, you can have the satisfaction of trying them and seeing for yourself if they will grow here.

On the other hand, you are sure to get some surprises with exotics, such as I did on discovering that the mountain cranberry and the bunchberry are perfectly happy in this sea-level garden. I didn't expect androsace to be happy either, but it is growing like a weed. Even saxifrages have surprised me by doing well. So by balancing the disappointments against the pleasant surprises, you may come out even.

I haven't said anything so far about soil, because I just assumed that you would not try to grow rock plants in plain southern red clay. It is essential that you provide a stony soil with plenty of humus. My favorite mixture is pea gravel and peat moss, half and half, with a liberal amount of superphosphate and dolomitic limestone mixed in. For saxifrages and androsaces I increase the amount of limestone and for acid-demanding plants I leave it out. This mixture is six inches thick. If the plants want real soil, they can go down into it; but I think that most of them are satisfied to keep their roots in the peat and gravel. In this mixture you can grow almost any plant that will take our climate.

To mention a few of the exotics that are happy here, in addition to androsaces and saxifrages, I have had no trouble with most Japanese plants, including *Iris gracilipes*, *Aquilegia flabellata* and *glandulosa*; all kinds of primroses except the auriculas; erigerons; heathers; almost all the bulb plants, whose number is legion but of which I think you will particularly love the little daffodils and tulips and cyclamen; the low-growing azaleas; most but not all miniature genera in the daisy alliance, such as *Actinia*, *Bellium*, etc.; plus pulmonaria and ceratostigma. These are all long-lived.

Some kinds of traditional rock plants which grow easily in northern gardens but which have proved impossible for me so far, include the lovely denizens of the prairies (which I always associate with Claude Barr), like *Astragalus* and *Oxytropis*, *Chrysopsis villosa*, and *Sphaeralcea coccinia*; the western phloxes, like

hoodii and *assurgens*; the lewisias; the auricula primroses; most of the plants of high mountain meadows (with an occasional exception like mountain cranberry); the penstemons of the southwestern deserts, which Dr. Worth has no trouble with; those of the western mountains, which grow perfectly in the states of Washington and Oregon; the West Coast creepers, like squaw carpet and other members of the genus *Ceanothus*; bearberry; douglasia; the western oenotheras; and the western silenes. It is particularly criminal, in my opinion, for us in the Southeast to try to grow such plants as eritrichium, rydbergia, *Silene acaulis*, phyllodoce, *Kalmia microphylla*, and alpine mertensias and polemoniums.

As to natives, you can plant with assurance any species that grows east of the Mississippi or in the Ozarks except those found only on high mountaintops. It is just a matter of choosing kinds that you think are suitable to your rock garden and that have either flowers or foliage worthy of the space they occupy. In the April, 1959, issue of this *Bulletin* Dr. Wherry gave an excellent list. I could not improve on it. But before you dig out that issue and read his list, I will mention my own favorites. No two people would make the same list as I, but you won't go wrong with any of these.

Foliage is as important as flowers. The mottled-leaf ginger (*Asarum shuttleworthii*) is unbelievably beautiful for a wild plant. Its heart-shaped thick evergreen leaves are mottled with different shades of red, purple, and green. It remains compact and non-spreading. The mountain cranberry (*Vaccinium vitis-idaea*) has dark green, evergreen leaves in a prostrate mat, but it is tiny—a curiosity piece only. The woodsia fern and the spleenworts are dainty enough to mix in with the flowering plants.

The bunchberry may not have berries for us here, but its prostrate leaves and white dogwood flowers are pretty. Bloodroot is a must; it will grow anywhere and last forever. The same can be said of golden star (*Chrysogonum virginicum*). You seldom see this in gardens, but I don't think it can be beaten for length of bloom and all-around neat appearance. It has golden daisies, and naturalizes for me. My other favorite that I seldom see in gardens is the meadow beauty (*Rhexia*), with four-petaled flat flowers in rich pink, in bloom all summer, and with seed pods like little brown urns, as pretty as the flowers. It too will grow anywhere. *Viola pedata* is temperamental, but is happy in my peat-gravel mixture; and it is surely the most beautiful of all violets. One plant had 165 flowers. *Chrysopsis mariana* is a standby, but might be considered a trifle too tall by some rock gardeners. *C. falcata* is lower, but did not stay with me. *Silene wherryi* is a beauty, and comes easily from seed, which it makes plentifully. *Aster linarii folius* has foliage that is a delight all year, and flowers that are welcome in October. I hunt around among native colonies and bring in only the best color forms. I now have plants in fairly deep violet that put the common washed-out tones to shame. They last forever too. *Aster oblongifolius* I use in the same manner as *Phlox subulata*. It makes prostrate mats hanging down a rocky slope which in fall are covered solidly with light bluish-violet flowers for three weeks. I have never seen it advertised in any eastern catalog, but Barr lists it under the name of *A. kumleinii*. *Coreopsis auriculata* has daisies in the most brilliant orange. *Penstemon hirsutus*, in the rich color forms that have been developed by me, is lovely in rock gardens. Though short-lived, it perpetuates itself from seed, and the seedlings of the good forms have as good color as their parents.

In a shady rock garden consider the following: The trilliums are all choice rock plants. I like partridgeberry for both foliage and profuse flowers. Checkerberry has good dark green foliage mats, but blooms only sparsely. Our two low-growing irises, *verna* and *cristata*, are fine. In *cristata* I like the selected color forms in deep violet and pure white better than the common pale blue. Our wild

bottle gentian is not as spectacular as those from Europe and Asia, but it grows easily and is beautiful. Dog-tooth violet (*Erythronium americanum*) has lovely flowers and equally pretty leaves. Polemoniums of the East are easy but not very showy. *Phlox divaricata* is everywhere in my rock garden—probably the most numerous of all the plants. *Phlox pilosa* and *ovata* are good. All these plants are within a 15-inch height range.

Some of the native plants mentioned above are hard to find in nurseries and have to be looked for in the wild or grown from seed. I never could understand why the wild flower nurseries fail to carry such choice plants as golden star and meadow beauty, *Aster oblongifolius* and *linariifolius*, and penstemons; and I hope to see these omissions corrected some day. Maybe I'll start selling them myself if I can't induce any nursery to do it. The many wild flower round robins are valuable in getting hold of plants that are unavailable at nurseries, by the members sharing plants with each other. The round robins of the American Penstemon Society discuss wild flowers as much as they do penstemons; and this is probably true of some other specialized plant societies. Rex Pearce offers seeds of many wild flowers.

Don't forget the basic formula for success in this difficult climate. If you want to take pride in your rock garden instead of apologizing for scarcity of bloom, depend on natives for the principal display and experiment with plants from other climatic regions only as a side line until you find which ones are adaptable. Then make the best of them also.

CHESTER K. STRONG

On May 21 Chester K. Strong passed away in Loveland, Colorado. Although not a member of the Society, he contributed to the *Bulletin* a lengthy and brilliant article on his favorite Colorado alpine (April, July, 1960) and frequently made his knowledge of the flora of the southern Rockies, and his extensive slide collection, available to the editor.

He loved the mountains and the plants that grow on them, and delighted in exploring almost inaccessible regions in search of rare species. He seems to have written little on his botanical investigations, and it is most regrettable that most of his knowledge has perished with him. We shall miss him as a friend and as a guide to the mysteries of the high places.

THE SEED EXCHANGE

It is now time to send seeds for the Exchange to Mr. Harkness, for to be included in the list they must be in his hands by November 15. The offerings last year were the most extensive, and most interesting, that we have had. We hope that this year's will be even better.

If you are contributing seeds of unfamiliar plants not described in the usual reference books, please send descriptive notes to the editor for inclusion in the January *Bulletin*.

Please send the seeds at once to

Mr. Bernard Harkness,
5 Castle Park,
Rochester 20, New York.

CROSS-SECTION THROUGH IDAHO

B. O. MULLIGAN, *Seattle, Washington*

SINCE WE BECAME INDEPENDENT, in 1949, in our travels in the Pacific Northwest, we have explored principally some of the numerous roads and winding trails through the Cascade and Olympic Mountains of Washington, with two all too brief excursions into northern California and southwestern Oregon, but none elsewhere. Because of this neglect of other states and provinces, and having acquired a larger station wagon more adequate to the needs of our growing family, we decided in 1956 to go farther afield. Idaho was chosen for several reasons: not too far away, a considerable number of mountain ranges, rivers and national forests to provide varied scenery, an interesting flora especially at higher altitudes, as well as suitable campgrounds, and finally perhaps the fact that it was apparently not one of the more frequented vacation areas.

The following narrative records some of our experiences and discoveries there during two weeks of the summer of 1956.

Saturday, August 4. We left home at 10:15 A.M., drove over the Cascades by way of Snoqualmie Pass, and lunched just off the highway west of Easton among the first ponderosa pines; afterward we continued southeastward to Yakima, Pasco, and finally into Walla Walla where we stopped at a motel for the night. The most notable features on our first day were the fine new four lane bridge over the Columbia River just west of Pasco, and the view from it to the west in the late afternoon; likewise the view down the Columbia where it bends west after receiving the waters of the Snake and enters a gorge at Wallula. Between there and Walla Walla are miles of sage-brush (*Artemisia tridentata*) country—very barren except for this shrub and a limited number of other plants. Mileage for the day 288.

Sunday, August 5. A warm morning. We drove from Walla Walla in southeastern Washington to Milton-Freewater in northeastern Oregon where many orchards of apple trees were entirely dead, presumably killed by the severe cold weather of early November, 1955. We turned east at Weston and went over a spur of the Blue Mountains (5168 feet) by Langham Lake, then south through Elgin, Cove,—where we collected fruits from a bush of *Amelanchier alnifolia* growing on a dry hillside of basalt rock—and North Powder on to Highway 30 and into Baker, approached through a long avenue of mature weeping willows. We continued on Highway 30 southeast until the road met and wound alongside the Snake River south of Huntington; after about ten miles we turned north onto Highway 95 and crossed both the Snake and the Idaho border into the small town of Weiser. Six miles or so north we turned northwest up Man Creek road, drove about fifteen miles up a typical forest road, and camped in a very small unoccupied Payette National Forest campground, beside Man Creek. At 1 A.M. a shower of rain fell, so we moved Michael into the car beside Bobby, but stayed out ourselves and there was no more rain. Mileage, 235.

Monday, August 6. A cloudy, cooler morning, quite a relief after the last two days. We took our time getting up, eating breakfast and then packing up. Here I collected fruits of *Mahonia repens*, quite plentiful on banks by the road, and lower down *Ribes cereum*—the red-berried form. *Crataegus douglasii* and *Prunus demissa* were very common, as was *Rosa pisocarpa* var., but these were not collected. We returned to Highway 95 about noon, turned north and continued along a winding undulating section with many wide views over valleys in different directions, through Cambridge to Council, evidently a busy little town. Here we left the highway and headed northwest towards Cuprum,

forty miles away in the hills, up a forest service road which began with five or six miles of more or less washboard surface but varied considerably right up to its end, though mostly poor and sometimes bad, with rock outcrops. At Bear (4100 ft.), eight miles south of Cuprum, we investigated a forest camp, but it was so poor in facilities and situation, plus the fact that a thunderstorm was rolling around and rain just starting, that we left it and on the advice of a youth at the guard station continued up to Cuprum, in heavy rain for the first four miles. The next few miles climbed steadily, over a narrow and very rough road, then descended several miles into Indian Creek valley, on which Cuprum is located in an attractive situation among pine and spruce trees. Here we were fortunate in getting a cabin belonging to Indian Creek Lodge; the lady owner had a sister living in Bothell, Washington, three or four miles from our home! Mileage 104.

Tuesday, August 7. After a leisurely breakfast on this fine sunny morning we drove along the road leading southwest toward the Snake River for about four miles to a point where it begins to descend to the river and also branches south to Windy Ridge. Here we left the car and hiked up a long series of ridges covered with a small variety of plants, including the shrubby purshia, an eriogonum and *Penstemon venustus*, becoming more rocky toward the top, where we lunched with a splendid view in front of us, west across the valley of the Snake into Oregon—or down it to the south if you preferred. After lunch a short walk west on similar ground brought us out to a point known as Satan's Throne, whence one could see for miles both up and down the river. South some four to five miles was a steel bridge which carried the steep and twisting road over to Homestead in Oregon. Upstream was the famous Hell's Canyon, of which we could see only the entrance cliffs. The whole view, especially across the river to the high dun colored bluffs with intervening gullies and gorges, overtopped by rocky cliffs marked by horizontal lines of rock strata, higher than we were situated, reminded me forcibly of pictures of the Grand Canyon. The light and shade as sun and clouds moved were fascinating to watch on such a large palette of canvas.

On the way down we collected seed of three species of *Penstemon* (*P. fruticosus* from a dry rocky site, *P. venustus* two feet tall, still with a few bluish flowers, and another of fifteen inches or so), of a rather infrequent calochortus, of balsamorhiza, which was plentiful, and of *Purshia tridentata*, bushes six to eight feet high, plentiful about halfway up the climb. We passed over a potentilla-like plant wedged in the upper rock, and a small allium (6 in.) but were pleased with what we obtained. Driving back along the road to Cuprum I added a silver-gray thistle, probably *Cirsium utahense*. Mileage 16.

Wednesday, August 8. We left Cuprum about 11 A.M., on a beautiful morning, and went up to Bear to photograph the very small postoffice. Arriving in Council at 1 P.M., we did some necessary shopping for food, gas for the car, mailed a few postcards and a parcel of lewisia roots (later determined to be *L. columbiana*), collected up near Satan's Throne, to Carl English, and finally had a milk shake each before proceeding north. We lunched along the highway in an attractive Forest Service camp and picnic area at Evergreen, about three miles south of Tamarack, beside the east fork of the Weiser River, among good ponderosa pine and Engelmann spruce. Tamarack seemed to consist solely of a lumber mill; this country is somewhat like the area near Che Elum in Washington, open, with ponderosa pine predominant. We drove through New Meadows and into McCall through a rocky gorge with a twisting road. Payette Lake forms a delightful background for McCall; motels and hotels are built along its shore into the town, but we stopped only long enough to get additional food supplies and to gather some useful information on roads and campgrounds in

the area from the headquarters of Payette National Forest, where a fine specimen of *Sorbus scopulina* seven or eight feet tall stood in the center of the lawn. As a result of this information we headed west again and after about eight miles turned north up the Goose Creek road toward Hazard Lake twenty-five miles away at the end of the road. The first two miles were up a very steep and narrow one-way road thick with dust. Fortunately we met nothing coming down, nor for seven or eight miles, until a jeep station wagon met us at a convenient junction of roads. After ten miles we passed Goose Lake on our left, an attractive place in the late afternoon sunshine, but unfortunately very short of camping accommodations or we might have stopped there. However, we did halt at the sight of a fine group of white calochortus, about eighteen inches tall, waving their flowers on the bank by the road. This was new to us, and subsequently proved to be *C. eurycarpus*.

We finally arrived at Hazard Lake campground about 6:30 P.M. (twenty-five miles in approximately one and three quarters hours will give an idea of the road character and surface, usually very rough and twisting, with rock outcrops to be dodged). By the time we had set up a tent (there were five others already there) and had supper it was getting dark, but at least we were where we intended to be, on the side of the evidently mosquito-ridden lake in a forest composed entirely of Engelmann spruce. Mileage, 105. Altitude about 6500 ft.

Thursday, August 9. Again we breakfasted leisurely and did not get away from camp much before 11 A.M. It was a sunny morning, but the sky clouded over about 1 P.M. and thunder rumbled in the distance over the mountains. By that time we had driven back up the road and had explored several areas southward from its highest point of 7300 ft., where we photographed large white-bark pines, eriogonum, and a fine blue penstemon fifteen to eighteen inches tall. At lunch time in a lupin meadow, rain threatened but failed to materialize. Thence we returned and walked over a large mass of granite rock outcropping, where we found the fern *Cheilanthes gracillima*, and what looked like *Erigeron aureus* in fruit, but turned out to be a variety of *Haplopappus lanuginosus*, some four inches high, of which seeds were collected. Mileage, 6.

Friday, August 10. Another fine clear morning. It took us three hours to get up, have breakfast, clean up, pack the tent and all else, and leave Hazard Lake. On the way down we stopped to take a couple of photos and to dig young plants of the blue *Penstemon globosus* growing beside the road. Luckily we again met nothing on the descent of the final steep and narrow two miles and at the bottom of the hill stopped for lunch in a picnic ground by Goose Creek, now a full-fledged young river. On into McCall, where we picked up some necessary stores and continued east toward our next campground at Lake Forks, ten miles away. This we found to be a most attractive small Forest Service camp, beside a creek shaded by Engelmann spruce and western larch trees, some of the latter very large specimens a hundred feet high or more. Beneath them grew a shrubby honeysuckle not previously seen, with fused twin red berries which the boys collected; this was *Lonicera utahensis*. Altitude 5000 feet, though the site neither looked nor felt like 5000 feet in Washington.

No one else was there for the night, so we had the place to ourselves, a most peaceful evening after the somewhat noisy camp at Lake Hazard, and slept under a sheltering spruce. From two Forest Service men at the local Guard Station I gleaned some useful information as to the trails to take out of the camp, and as to other campgrounds farther east. Mileage 41.

Saturday, August 11. After breakfast the boys and I wrote some postcards, and I packed a box of plants and seeds for the Arboretum, then drove in to McCall (ten miles) and mailed them all just before noon. On returning we

packed up some food, had an orange each and crossed the river on large boulders to reach the trail going east up the river. This was uphill through pines, spruce and grand fir, with *Abies amabilis* later, and even, to our surprise, a few *A. concolor*. We found a sunny sand bar by the river and ate there, watching a dipper on the rocks meanwhile.

Walking on a short distance into a meadow by the stream, where the small *Hypericum scouleri* was common, we found two plants of an unidentified gentian, taller than *G. calycosa*. Coming back down the trail, we collected seeds from a colony of *Synthyris missurica* growing on the bank, partly shaded and certainly well drained as to soil. Lower down we saw a large colony of *Coptis laciniata*, the western gold-thread, and *Linnaea* growing vigorously close to the river, in which we bathed our feet on our return about 4:45 P.M. Road mileage 20.

Sunday, August 12. Today we spent hiking up the trail south from the camp in the direction of Boulder Lake, six miles away. However, we had no intention of going all the way, and after about three miles, when clear of the forest (chiefly lodgepole pine and Engelmann spruce), and on more or less open mountainside except for scattered groups of spruces, we continued due south up the valley instead of bearing southwest toward the lake.

All this area had very recently been grazed by sheep and the flora consequently ruined for the season, so we saw practically no plants remaining that were of any interest except for a few of the pale yellow form of *Aconitum columbianum*. Eventually we crossed a meadow and came down to the creek again, here about eight feet wide, where we had a welcome though late lunch.

On the return trip of two hours we collected fruits of *Sambucus melanocarpa* in this high valley, and low down near our campground plants of the *synthyris*, *coptis*, and an anemone, all noted the previous day. Only one other car was in camp that night, so again we were fortunate.

Monday, August 13. We took to the road again today, leaving at 11 A.M. and continuing east up the valley of the Lake Fork creek. Gradually the road started climbing through the forest, but in the eleven miles to Lick Summit (6900 ft.) we met only one loaded log truck; this and others, we had anticipated from a warning sign placed near McCall: "Beware log trucks, 35 miles." The descent was somewhat different, winding down a steep, narrow and dusty road with the probability of meeting heavily loaded log trucks ascending, which we did to the number of two, waiting for them to pass at places where the road was wider. Over the whole road we encountered eight, which was enough under those conditions. For miles we followed the valley of the south fork of the Salmon River, deep in a gorge of which the steep sides were covered with *Pinus ponderosa*. Logging of wind blown pines was going on in several places south of Krass Ranger Station, and at one point we had to wait for fifteen or twenty minutes until the road was clear of trucks and loader. We lunched by the shallow river, but moved on as quickly as possible—too many flies!

During the afternoon we passed Warm Lake, a small resort, then accomplished a very long, steep and winding ascent to a 7300 foot summit, quite unsuspected from the map. The car was not adjusted for such altitudes and climbed only slowly. From there we dropped down to Landmark Ranger Station in the middle of a dry sandy lodgepole pine area. About ten or twelve miles south of it, however, we came suddenly into a long and wide valley, rising on each side to hills covered with forest. There were quantities of asters in bloom and some other flowers also—a very pleasant change of scenery and flora. As we ascended to Deadwood Summit the latter became more typical of higher al-

titudes, and over the top we were greeted by quantities of orange, yellow, or red paint brushes (*Castilleja* sp.) one and a half to two feet tall, flowering by a rushing stream, with a very fragrant artemisia among them. Most of the trees were alpine fir.

From there we rolled on downhill a few miles and were lucky to find a small camp, Blue Point, eighty miles from our morning starting point and some sixty miles west of Stanley, our next goal. Here was a tiny stream of the most delicious drinking water we had yet found. Two other cars came in soon after we did and proved noisy campers later in the evening, but we were some distance up the hill from them and slept out under big Engelmann spruces once again. Mileage 80.

Tuesday, August 14. We left our pleasant little camp reluctantly and continued down the road toward and past Elkhorn Ranger Station, where we forked left for Cape Horn and Stanley. Blue lupines were most plentiful here along the roadside and again we saw the white *Calochortus eurycarpus*, which seemed to grow solely in the grass under lodgepole pines. An unexpected find was a few plants of *Clematis hirsutissima*, very evident in fruit, so we collected seeds as well as specimens for the plant press; this was the only place where we saw this species, originally named by Pursh in 1814. *Potentilla fruticosa* occurred in quantity soon afterwards, but in a poor flower form. Through miles of the same pine forests we gradually climbed to Cape Horn summit (7200 ft.) and descended into another wide valley, the narrow road winding along its north-east side, and in the west the first peaks of the Sawtooth range. Here we saw countless plants of blue gentian in full bloom in the grass, apparently *G. oregana*, about a foot high or less. We photographed it in color and dug a few for our garden. This was later identified by C. L. Hitchcock as *G. affinis*, of which *G. oregana* is now regarded only as a synonym.

The remaining miles into Stanley were dull and rough. We arrived about 2:45 P.M., in a minor wind and dust storm, and found it to consist of two small collections of houses, a few stores, cafes, cabins, etc., in the valley of the Salmon River. The Sawtooth Mountains, which we had seen for some time, were close above it. We bought what we needed for food plus some essential gas—no Shell or Chevron stations, so for once I had to pay cash for it. Then we headed south down Highway 93 to Redfish Lake and a large campground beside it, where we were again lucky enough to find an attractive place on the very edge of the lake. The tent had to be erected immediately, as a sudden storm blew up from the mountains at its south end (Mt. Heyburn, 10,229 ft.); a little more rain fell, but not for long. Mileage, 68.

Wednesday, August 15. The lake was still with a thick mist hanging over it when we woke at 7 A.M., but by the time we were finishing breakfast the sun was out and shining warmly. Having to pack the tent as well as everything else made us later than usual in leaving (11:30 A.M.), and when we had driven about ten miles along the highway, admiring the long panorama of the Sawtooth range on our right, we were held up by a culvert being replaced. We waited, together with twenty-five to thirty other cars, for ninety minutes for the job to be completed. Some went fishing in the adjacent Salmon River—where fish were clearly visible, while we collected seeds and specimens of an attractive silver leaved, lavender flowered lupin (*L. argenteus*) about eighteen inches tall growing between road and river.

After driving for some miles down the valley, we passed Galena Ranger Station and actually found ourselves on a wide four-lane black-top highway—the first since McCall five days before. This was the easy ascent up to Galena Pass (8752 ft.), the highest point we reached on the whole trip, well curved

and graded and providing splendid views northwest to the Sawtooth mountains and the valley we had just traversed. We parked by the roadside rather more than halfway up and ate lunch with the view before us. Unfortunately clouds and a shower came up as we finished, so the view from the summit was spoiled for photography.

From there, twenty-four miles down into Ketchum, the first few over blacktop highway winding down through timber in the valley of the Wood River, then becoming of the sagebrush hills type, on a dusty gravel road. In Ketchum we filled up with very necessary gas and oil, had a milk shake all around, did a little shopping for food, and then drove a mile east up to Sun Valley, an attractive oasis in this country—for those prepared to pay for the type of services and accommodations available. Thence twelve miles south to Hailey, where we turned west from the highway for the first time since leaving home and headed across a deserted sage brush area for Soldier, thirty-one miles away. At one narrow point enroute, in a small gorge evidently of basalt rock, we stopped abruptly for a single bright orange flowered plant of *Sphaeralcea munroana* in bloom, and collected a few ripening seeds. Our camp for the night was an aspen grove by the creek twelve miles north of Soldier; we made it, set up the tent and started a meal as thunder was rolling overhead. A little rain fell then, more when we were safely in our sleeping bags. Mileage, 113.

Thursday, August 16. We left camp about 11 A.M. as usual, on a very bright warm morning, and drove west through Hill City—which is connected to Fairfield by about twelve miles of railroad which apparently goes nowhere and must be used chiefly for hauling grain—over a winding road through sagebrush hills down into Mountain Home, in southwestern Idaho on Highway 30, between Twin Falls to the east and Boise, the state capitol, to the west. From here a very straight run of forty-two miles on the best highway we had been on since leaving Oregon took us into Boise about 2 P.M. If there had been any shade we should have stopped much earlier for lunch, but finding none, we had to postpone this until almost through the city, when we utilized some young black locust trees by a road just off the highway. The altitude here is 2700 feet, so we had descended considerably from 8752 feet the day before at Galena Summit.

From Boise we continued through Caldwell, Parma (a fine avenue of black locusts here gave perfect shade along the main street), crossed the Snake River once again at Nyssa into Oregon, and filled up with gas before proceeding to Vale, over Brogan Summit (3983 ft.), in sagebrush country, and down to Ironside. Thence a climb up over Eldorado Pass (4623 ft.) among some timber once again, down to Unity—somewhat larger than Ironside—and up again through fine stands of *Pinus ponderosa* and larch on the borders of the Whitman and Malheur forests. This Highway 26 in Oregon is excellent and very good time can be made on it, as there is very little traffic. Finally we arrived in Canyon City, and secured a cabin for the night, chiefly to have facilities for cleaning ourselves thoroughly after so many dusty miles (now 1375) and so much camping. Mileage 299.

Friday, August 17. This was a day of contrasts: first through an area of great geological interest for its rock formations and fossil beds in the John Day River valley en route to Kimberley; then fifty miles farther on a vast rolling wheat country centered around Condon in northern Oregon, the fields now mostly cut and in stubble. Finally came the gradual descent to the great Columbia River again at Arlington, and eventually on

Saturday, August 18 we arrived at home, weary but happy after a wonderful trip on the back roads of western Idaho.

SEED COLLECTING IN THE COLUMBIA GORGE

MYRTLE P. HEBERT *Elma, Wash.*

FOR THREE YEARS I have been planning to visit Mrs. Mackaness in the Columbia River Gorge country, at the time when she goes out to collect penstemon seeds for the exchange that I direct for the American Penstemon Society. The description of the area made the invitation very alluring, but it took a final push from my 'pardner' in collecting trips—Mrs. Dutton of Tacoma—to get us on our way in her car in late September, all set for three days of playing hooky from household chores.

Mrs. Dutton lives about twenty-five miles from Olympia—and so do I, in the opposite direction—so we met there and started for Portland, arriving in mid-afternoon and stopping for a visit and chicken dinner with an old Montana friend, the girl next door of days gone by. Afterwards the friends got in their car and led the way to a little motel on the main highway, where we had reservations.

Mrs. Mackaness lives a few miles off the highway, so we called her, got directions to her place, and drove over to complete our plans for the seed collecting expedition, visited a bit, then returned to our motel and to bed, for we were to leave early the next morning. When we returned, Mrs. Mackaness was ready with all the equipment, lunch, paper bags, labels, pencils etc. for seeds, trowels and plastic bags for plants, notebooks, extra wraps—quite an array.

We picked up another lady, a near neighbor, and the four of us started out, going up the canyon along the scenic highway route with many lovely lookout points where we stopped briefly to look at waterfalls or cliffs, or more often at penstemons. At our first stop we had the turbulent Columbia on one side of the highway and sheer overhanging cliffs on the other. Looking through a field glass we could see little plants growing in minute crevices in the rocks, penstemons, ferns and many other toughies, with swallow nests attached, who knows how, to those high rock walls. What a surprise those baby swallows must get when they make their initial flight from the home nest!

Two species of penstemon seeds were collected along that bit of bank. Then we went on to a place where the railroad has a tunnel through a point of solid rock. Over and around the tunnel, great mats of *Penstemon barrettiae* were growing. It is an odd and totally different type, which I had never seen growing wild before, so that it was a real pleasure to climb up the steep bank and see it in its native habitat. Along the railroad track, beyond the tunnel, *P. richardsoni* was in bloom, even at that late date—a pink form. But there were ripened seeds too, which indicates a long blooming season.

A bit farther on, we left the paved highway and turned inland and upward, heading for the "lava rocks", a place of jumbled rock formations of comparatively recent flow. We scrambled around them and secured seed of *P. fruticosus*, while along the trail to where the car was parked we collected *P. subserratus*, a neat little blue one that grows among trees, or at least does not resent the encroachment of other plants to the extent that most penstemons do.

Returning to the car, we got out the lunch and found a nice shady nook where we ate and rested briefly. It was a pretty setting with lots of trees and an irrigation ditch. We had passed apple orchards on the way up, and I suppose the water went to that section.

The final trip that day was to a high point on the approach to Mt. Hood, Cloud Cap Inn, a recreation camp which was closed at that season. The elevation

was so high that we could look off to the north and see the string of snow-capped Cascade peaks, Mt. St. Helens, Mt. Adams and Mt. Rainier, and off to the east, far across the scablands to the green and gold checkerboard of wheatfields, a wonderful view not soon forgotten. Two more penstemon species were collected here, one kind on the sunny slope and another in the shade of the north slope, where many plants were still in bloom. Then we went back to Mrs. Mackaness' for what she termed a pickup lunch and what looked to us like a feast—then on to the motel for a night's sleep.

Our last day was short. We drove up into high country again, to Sherrard Point, for two last species. We parked the car at a large parking flat and followed a well built trail up to the Point—a pinnacle enclosed in a secure fence, with benches to rest on, if anyone can rest perched up on a sharp point with a yawning abyss on three sides and a trail on the fourth. My mountain climbing ego took an awful deflation right there; while my two companions risked their necks out on that sheer rock slide, with neither hand hold nor foot hold, I hugged the trail and my heart did a flip flop every time a loosened rock rocketed to the canyon floor hundreds of feet below. They got the seeds, but we all heaved a sigh of relief when that part was done.

Penstemon cardwellii grew in lavish abundance on the flat around the parking area, so I gathered great quantities of that, along with more cuttings than I could possibly use, and the other two relaxed with a butterfly net; after that half hour on the cliff, they were still able to chase butterflies.

That completed the collecting. We drove back to Mrs. Mackaness' and spent several hours in her beautiful garden; then, two hours behind schedule, we pointed the car north and headed for Olympia, arriving there in time for me to catch the last bus for Elma, complete with suitcase, a huge bag loaded with plants, and various incidentals. Fortunately it is a nice local bus that accepts anything. Mrs. Dutton went on to her destination with a well loaded car. The next day we both did a lot of transplanting, and for a wonder, the results have been quite gratifying.

SOME EASY "DIFFICULT" PLANTS

Laura Jezik, *Seattle, Washington*

VERY OFTEN when rock gardeners speak of *Fritillaria pudica* or *Sisyrinchium douglasii*, the conversation ends with the thought that these are plants which will bloom for a year or two in the garden, but will disappear after that. I do not find this to be the case.

I have had *S. douglasii* for four years and *F. pudica* for three. They are planted in a silty, hot, prairie soil, with full sun, and are not only holding their own, they are increasing; the *Sisyrinchium* by enlargement of the clumps, the *Fritillaria* by offset.

The thought had occurred to me when I planted my few collected fritillaries that the little rice-like offsets could be separated from the parent bulbs, but I was a little bit in awe of them so I did nothing. My cat, however, is no respecter of fritillaries, and when the mood was upon her she merrily dug up the planting, scattering both parents and offsets. Two years later I had not only an increase in blooming plants, but also hundreds of the babies have enlarged and are approaching blooming size.

Last spring, wishing to show off a little some day, I panned up a number of these little ones. Without thinking I used a little well rotted, powdered manure in the compost beneath the bulbs, although separated from them by a layer of sandy soil. The cat knocked this over and mixed up the contents a little. It is at times such as this that I rejoice that the average cat lives only six or seven years.

My *Sisyrinchium* set seed this spring and I have planted these, but as yet I have nothing to report of their activities. They sit there like the irids they are, and if they come up I shall count myself thrice blessed. Lawrence D. Hills, in his "Propagation of Alpines," seems to think they will be up before winter.

One must never make light of the exquisite, so I suppose I shall pay for my blithe attitude toward these plants by their untimely deaths, but as of this date they thrive.

Another plant which I have had, and would still have were it not for the packs of dogs which roam our neighborhood despite leash laws, was *Spraguea multiceps*. I had it for several years in the same place as the two previously mentioned plants, but in a special crevice, with a pumiceous compost. I have observed that the white granular pumice which can be found here and there on our mountains south of Mt. Rainier makes a warmer compost for those plants which need it, than does sand or any other crushed rock I have used. This is ideal for *Lewisia rediviva*, and I believe for *Oenothera flava*, which I will have there whenever I can get a plant of it.

Spraguea multiceps did not bloom for me while I had it, but I believe I know how to make it do so in the future after I re-collect it. It is a plant which does not mind moisture and our winter wet as long as it can keep its roots out of it. Buried in a vertical crevice it dies; allowed to crawl over a horizontal crevice it increases in size.

NEW LEWISIA AND KALMIOPSIS

MARCEL LE PINIEC, *Medford, Oregon*

IT MAY BE of interest to lewisia fanciers to know that two color forms of *Lewisia cotyledon* were recently found in the Siskiyou Mountains of southern Oregon. One is pure white, the other clear yellow, neither showing any trace of the pink median stripe present in the petals of the species.

A natural hybrid, *Lewisia cotyledon* x *L. leana*, was also discovered in the same range were, by rare accident, the two species intermingle.

Kalmiopsis leachiana, Umpqua variety as it is now offered in the trade, was discovered in June, 1955, while exploring the primitive and rugged country northeast of Roseburg in the company of Warren Wilson of Maplewood, Oregon, and Floyd McMullen of Portland, regional chairman of the Northwest Subgroup of the Society.

Because of marked differences in the habit and appearance of the plant, we decided to submit it to Dr. Morton E. Peck, then curator of the Peck Herbarium at Willamette University, who pronounced it identical with the plant found by Mrs. Leach in the Curry County mountains of southwest Oregon. However, the results obtained with plants grown here and abroad have shown that this form is sturdier, more compact and more floriferous than the type. While this variety is primarily saxatile (seldom found in the detritus accumulated at the base of the cliffs upon which it is found growing), it will thrive in a subacid compost of crushed rock, sand and leafmold.

THE DUBIOUS JOYS OF SEED COLLECTING

C. R. WORTH, *Ithaca, N. Y.*

"PACKETS OF SEED look dear in lists at a shilling each; I know now that they would be cheap at sixty, so much trouble will they assuredly have cost their collector in anxiety and trouble and nerve-strain before he has acquired them." So wrote Farrer after his first season in the mountains of western China. It seems to me that he underpriced his wares: after a long and frantic search that has perhaps yielded one phlox seed, or none, the harvest certainly should be worth its weight in diamonds, and first quality stones at that. Yet an occasional casual request for some hard-won treasure makes me wonder whether there may be persons who believe that the collector has but to stop his car, get out and admire the view, and return to find the seeds lying on the car seat, not only harvested, but cleaned, packeted, and neatly done up for mailing.

So, to vindicate my efforts, I shall force upon the gentle reader (without warning Aunt Agnes, as did Farrer, when to skip and when to resume reading) a gasp-by-gasp account of our adventures during the past summer. If at times I groan too loudly, it may be that I am but laughing at my chronicle (I am not quite certain upon this point myself). For, as collecting trips go, it was an easy one. No longer do I thumb rides to unknown destinations, sleep in haystacks or four in a narrow bed at a sheep camp, sit all night in a bus station listening to the clank of slot machines, or travel overnight in a jolting bus and dash on foot twenty miles up a mountain the following day. Those were the pastimes of more youthful days; now, while I have no craving for luxury, I do appreciate a comfortable bed and a well-cooked evening meal, and lay out the route so that we shall not be too often deprived of these indulgences, and so that we shall avoid unduly long hikes.

Our chief protagonist has been, during the past three summers, not physical discomfort, but the weather. The spring of 1958 was unusually wet, and plant growth phenomenal. By midsummer drought had set in, the lowlands were scorched and the alpine regions backward, for they depend on summer showers to melt the deeper drifts and to bring on the plants. The next year was worse; by 1960 the drought exceeded any that I had seen during the Dust Bowl years, many herbaceous and bulbous plants did not even start growth, others had flowered and dried up without seeding, while many regions were strewn with dead and dying plants, especially of the "bun" types, and in some places even the sagebrush was doomed.

A seed-collecting trip, it should be pointed out, is far different from a search for plants in flower. It must be undertaken some weeks after the plants have bloomed, with no flashes of color to guide one's search. Especially in an unfamiliar region (and even in a well-known one, some of the short-lived plants will not be at the homes they occupied formerly), one must know enough of the habits and tastes of various species to select, out of perhaps hundreds of square miles, their most probable habitats. Sometimes one guesses right, sometimes wrong, but in either case one must search, almost inch by inch, until at last some trace of the plant is found—perhaps in health and loaded with ripe seeds, more often a dessicated and shrivelled tuft through which one paws frantically in often vain hope of a trifling harvest. The search is complicated by the habitats of many of the choicest treasures, which grow in glaring white limestone screes; one is soon almost blinded (colored glasses simply obscure the plants), and squints around desperately, fervently hoping that nothing is being overlooked. Then at

last when a plant waiting to be harvested has been discovered, what is it? No flowers serve as clue, and one must attempt to decipher the genus, and with luck, the species, from a few capsules and leaves—or in some cases a pile of capsules beneath which there is not the slightest trace of a plant. One can find nothing to put in the press, and can but guess at the name, and, more important, at the garden-worthiness of the spoils.

Such are some of the major obstacles of seed collecting; now for the journey itself. At 4:30 A. M. on July 18, 1960, I staggered out of bed, made a last-minute check to see that everything was in order for an absence of six weeks, locked the house, and got in the car, which had, the night before, been loaded with plant press, sleeping bag, bottled gas stove, and the myriad other articles that one may never use, but dare not leave behind. A thirty mile drive around the south end of Cayuga Lake, and I picked up Jack Furcha, my nineteen year old companion of the previous summer, who had already displayed his plant hunting ability, and who was to prove invaluable in the weeks that followed. Thanks to judicious use of toll roads and of US 30 rather than US 6, by mid-afternoon of the third day we were collecting on the eastern slopes of the Laramie Range in southeastern Wyoming. *Townsendia grandiflora* displayed, along with ripe seed, a few of its white daisies, and there were assorted locos and a gaillardia of not more than a foot, which I could hardly reconcile with the usually much taller *G. aristata*. Higher up, construction of an interstate highway had stripped all soil from most of the promising locations, and it was some miles before we stopped at a tempting scree whose most interesting resident was the yellow daisy, *Hymenoxys acaulis*. Penstemons were in bloom, but had not begun to ripen their seed, and we forbore stopping at the summit, where grows an assortment of only mildly interesting dwarfs. At last we dropped down to Laramie, well pleased with our first hours in the hills.

We rejoiced too soon. Next morning, heading west to the Snowy Range, we stopped at one after another of the usually entrancing gravelly outcrops. Phlox was there without seed, and *Penstemon exilifolius* was in flower. But of the many lesquerellas, locos, and other miniatures, there was hardly a trace. The rich slopes at Centennial showed few of the plants I had met there in previous years, and the only harvest was of curious but ugly *Besseyia rubra*. Then I began to realize that the severe drought of which I had been warned was even worse in scope than had been anticipated. Up on the alpine heights, more of the same story: few plants in bloom, no seeds, green or ripe, on most of them. Long search produced a few of *Eritrichium argenteum* and *Phlox caespitosa pulvinata*, but the magnificently colored form of *Polemonium viscosum* had made almost no growth. The exquisite erigeron that is probably *E. simplex*, and *E. compositus*, completed the harvest. A survey near the summit of the road revealed an allium which I had never noted before, still in bloom. There was no point in lingering, so on to Rock Springs for the night, over a rough and dull road, along which, many years before, I had seen many attractive dwarfs—but much earlier in the season, so that they may still be lingering to brighten that otherwise dreary landscape.

The next morning we crossed South Pass, route of the old emigrant trains, at the southern end of the rugged Wind River Range. Here we had expected to spend some hours, but now the full effect of the drought really displayed itself. We stopped repeatedly for exploration, found a number of locos in seed (1960 was certainly the "year of the loco", whatever its shortcomings may have been), and the curious composite *Chaenactis douglasii* with lacy, dusty leaves and heads that are clusters of long tubes of a dirty lavender white. I can never decide whether I like this plant, but it fascinates me, perhaps more when growing on

a high scree than on a roadbank at the edge of the foothills. The multitudes of phlox were barren, the lewisias and dodecatheons retired for the season, if indeed they had ever chosen to appear. Everywhere were spots that simply called for investigation, but had little to offer, last summer.

On through the sometimes plant-rich, but now utterly barren, flats of central Wyoming, and across the Big Horns on US 16, where we were caught in a shower that was more lightning than moisture. A stop at the summit for a quick check in the rain indicated that there too all was not well, and we dropped down into Buffalo for a visit with Ada and Vere Duncan.

But all was not well there either. The day before, Ada had been taken to the hospital with a broken arm. However, they insisted that we stay as planned; with generous help from the neighbors, we batched quite successfully, and Jack became an accomplished dishwasher. We visited and were visited by politicians and millionaires (Jack was unaware until she had departed that we entertained the daughter of a millionaire cattleman at lunch one day), played wild forms of pitch and pinochle, and went on a Sunday picnic and steak fry in the foothills of the Big Horns. Yet the week spent there was not all diversion. One morning Vere, Jack and I set out for Crazy Woman Canyon, where Jack performed miracles of climbing the limestone cliffs for seeds of *Kelseya uniflora*. I, at more accessible points, found that the interesting physaria (still unidentified) of previous years was no longer in evidence, that *Boykinia heucheriformis* had not flowered (though Jack brought back from the heights a few stems with good seeds), the ferns were almost desiccated, and the makeweights were in too poor condition to evaluate. Up through the canyon, this year in passable condition for a car, we stopped at the junction with US 16 to search thousands of plants of *Phlox hoodii* (?) without finding a single seed. At Powder River Pass there were a few seeds of *Eritrichium elongatum* and *Pulsatilla hirsutissima*, an erigeron or two, a pink pedicularis, and a delightful dwarf lupine still in bloom, while along a snow fence a loose and long-needed phlox, *P. multiflora* (?) was white with big flowers. I wandered far and wide in vain search of *Mertensia oreophila*, although if it had appeared at all it must have been long dormant, and found nothing more of interest.

Another day, with Ada able to accompany us, we went over US 14 (which had been described only a few days before, in the Saturday Evening Post, as the worst road in the country!) toward the Medicine Wheel. Even worse drought was there, but Vere and Jack diligently gathered seeds of eritrichium and douglasia, while I searched around and finally came upon a small stand of *Dodecatheon uniflorum*, of which I had found three plants the previous year, the first I had seen since 1937 in a range far to the west. Few of the plants had flowered, and scant was the harvest. I hunted a long time, investigating every plant I could see, for this mite is a real treasure, only one or two crowns above which a stem of two or three inches bears a single flower, inch long and apparently deep purple. Nearby, though not in the swale with the dodecatheon, was a gilia of the same height, with a globular head of tiny straw-yellow flowers. This appeared in only a few widely separated specimens, and I fear that its seeds may be too green to grow. A ranunculus that I could not name added to the harvest, as did the most compact and largest-flowered form of *Erigeron compositus* that I have ever seen. The boykinia, strayed from its usual canyons to alpine cliffs, had a few intense crimson flowers; I have never been able to distinguish this northern plant from *B. jamesii* of Pike's Peak; nor, I find, can many taxonomists. *Aquilegia jonesii* was here and there, but nowhere could I find a plant that had flowered.

We stayed with relatives of the Duncans in their cabin in the mountains, and returned early the next morning after a night of rain. But the rain had not extended to the western part of the range, and the limestone hills seemed even more parched than they had the previous day. Vere and I (Jack was indisposed and remained behind) climbed a peak, finding the crevices of its rough summit dotted with the *gilia* and *Aquilegia jonesii*, again unflowered. We separated on the descent, I misjudged my course, and found myself stranded on a steep and loose lime slide above high cliffs. Returning looked even more perilous than advancing, so for a thousand feet or more I sweated my way over those delicately poised rocks, panting as after a stiff climb, and expecting every moment to be my last. On the way I met a foot-high penstemon, woody at the base, herbaceous above, loaded with blue-purple bloom. At first I took it for *P. montanus*, but it was not that, and I am uncertain whether it can be merely *P. fruticosus*, for as I recall the leaves were decidedly toothed—but I doubt that my curiosity is sufficient to induce me to visit that slide again, especially as its only other inhabitant was a trailing atragene. Far below me I could see Vere, safely at the foot of the slide, returning to the car, and cursed myself for not having stayed with him. At last I reached a slope where I could descend safely over mats of phlox, but found nothing new except a few plants of *Polemonium viscosum*, at whose absence I had been puzzled. After lunch we crawled on hands and knees for hours, harvesting *Douglasia montana biflora* and *Eritrichium elongatum* from the flat ridge which they sheeted. But of the other plants which I had hurriedly gleaned a rich harvest in the previous August—*Townsendia parryi*, drabas and locos, we could find none; there were only a few seeds of the two phlox, and even eritrichium was browned and dying in the drought. It seemed that we had vast quantities of it, yet a quart or so of its tiny stems yielded only a scant teaspoonful of seed.

Several hours in the rich woodlands and on the slopes around Story were almost as unproductive as the other places we visited. There were erythronium, castillejas and a lupin, and a good crop of *Penstemon nitidus*, but of usually profuse *Fritillaria pudica* only a few capsules, and none of the other interesting plants had seeded.

Shortly afterward, as the long trip to Outlaw Canyon, where the previous year I had found a variety of attractive plants parched and seedless, would be a waste of energy, we drove into Montana. The Crazy Mountains had long fascinated me, in name at least, for I had never more than glimpsed them from the distance. At Big Timber I contacted by telephone a dude ranch at their base, and learned that while they had not room for us, we might stay at their fishing camp, likewise in the foothills. The road there grew rougher and rougher, and we almost turned back, but the sight of those fantastic snow-streaked peaks coaxed us on, and at last, many miles beyond the distance we had been told, we pulled into the fishing camp. There were no other guests, and the man in charge scarcely welcomed us, but grudgingly showed us a cabin, bare except for a couple of beds with mattresses, and a stove, and asked whether we had sleeping bags. Then the question of food came up, and as we had been assured that it would be available, we had brought no supplies. He finally decided that if we'd put up with what he could provide he'd let us eat there. We sat on the porch for a while, talking of this and that, and finally the man said that he'd get busy and warm up the skunk stew. Not knowing what to expect, I kept silent, and our host and a female character straight from an Alfred Hitchcock show carried on a lengthy discussion of the elimination of a family of baby skunks that had been living under one of the ranch buildings. When the meal arrived, the "skunk stew" proved to be hot dogs. Chewing one, I remarked that it was the best skunk

meat that I'd enjoyed in a long time. Later, I got further revenge. Asked what time we'd like breakfast, I replied that we'd not want it much before four. The cowboy blinked a bit, finally stated that he did not get up till six, and would seven be satisfactory? We made arrangements for horses to visit the peaks the next day, but the caretaker was most uneasy about our making the trip because of the extreme fire hazard. After careful examination of those fantastic slides and crags from a lookout point near the ranch, I could see no place where a respectable plant would condescend to grow, and to the caretaker's relief (and financial loss) called off the jaunt. Perhaps it was as well that I did so, for late the following afternoon we could see the peaks drenched in a violent storm, unpleasant to be in and probably making impassable the dirt road to the outside world for a day or two.

Our next stop was at a limestone hill, where after a couple of miles on foot up a steep grade, we reached a great meadow where outcrops of almost pure lime rubble are dotted with stands of *Aquilegia jonesii*. Here it was so dry that the grass crackled under our feet, and douglasia had cooked without being able to develop its seed. *Eritrichium* had been somewhat more successful, but I gathered only a few seeds, all too optimistically assuming that the Big Horn harvest had been more productive than it was. For several hours, on blinding white scree, alternately roasted by the sun and frozen by the wind, I investigated every plant of the columbine, I do believe, and came up with perhaps a dozen capsules. Jack had wandered off and had found, as I recognized when he showed it to me later, an especially good stand of the aquilegia which I had stumbled on (literally, in sliding down the mountain) some twenty years before and had all but forgotten. His harvest there was somewhat better than mine, a total of slightly over a thousand seeds. I also garnered a little pedicularis growing on the scree, which looked exactly like *Elephantella groenlandica* except that in the dried-up flowers I could see no evidence of the elephant's trunk, nor can I believe that the elephant-head would grow in so sere a location. A very dwarf erigeron had good heads with either white or rich pink rays, but my efforts to collect only the colored form were blocked by inability to find any plants with both flowers and ripe seed. On the descent we harvested *Arnica cordifolia*, a larkspur reported to be *Delphineum menziesii* but growing nearly two feet high, *Townsendia parryi*, and a few seeds of a good white phlox—perhaps *P. multiflora* again. Several plants seen on previous visits seemed to be absent last year.

A detour was made to Virginia City, Montana (not the Nevada one of the TV show) so that Jack could see a bit of the "Old West." On the way we secured a good quantity of seed of the lowland form of *Douglasia montana* growing around quartz outcrops, a pink erigeron coarser than the one mentioned above, *Penstemon aridus*, *P. eriantherus*, and several locos. Both sides of the valley were lined with fascinating peaks, one of which I explored many years ago, and found rich in plants. On a recent visit I could find no way of reaching it except by hiking ten miles or more each way, and I no longer feel up to such antics, so I could but look on those entrancing vistas with longing, and speculate on whether there might be any reasonable way of attaining the heights. Perhaps some day—and then again, perhaps not. We stopped for a look at the scene of the 1959 earthquake, and from there were detoured into Yellowstone park over some twenty-five miles of what I believe is the worst "road" I have ever encountered, here or in Latin America. It ran over fairly level ground, but nothing else could be said in its favor, and I well understood the warning sign that chains are needed in wet weather. On the Idaho border I caught glimpses of a magnificent peak, one that I believe Rydberg explored, but again, in these almost horseless days, the question of reaching it remains unsolved, for the map shows no road of any sort leading into the area.

After visiting the Upper Geyser Basin and paying our respects to Old Faithful, we decided that it was time to escape from tourists and bears. To my later regret, I passed up the opportunity to revisit, after many years, Beartooth Ridge, and we spent the night at Jackson. After long query I found a man who had slight knowledge of the road to Sheep Mountain, where I had been once in my younger days. But it seemed doubtful that the road was in condition for a car; even if it were, the climb had been, even then, long and exhausting; and the peak looked burned and brown, for even usually moist Jackson Hole was suffering from the drought. So unhappily we drove up Hoback Canyon, on whose steep slides I could see no sign of *Polemonium viscosum*, *Penstemon montanus* or *Petrophytum caespitosum*, distinctly noticeable as late as 1947. Not a plant of the slightest interest could we spot on the long drive up that normally fertile canyon, nor to the south of it could I catch a glimpse of the phlox that had been so profuse and so obvious two years before. I hardened my heart and drove past the beloved mountains west of Big Piney, for never would my present car, I feared, make the trip over that wicked road. Kemmerer, at considerable altitude, is surrounded by desirable plants, but a few seared specimens of *Penstemon procerus* were all that we could turn up. West of Kemmerer, near the fossil fish beds, two years before I had found two or three plants of extremely rare *Penstemon paysoniorum*. Better luck, of a sort, attended this visit, for I came upon a slope with a considerable number of plants. They had flowered, and the flowers had dried up and were clinging to the stems, without being able to develop seeds. Long search finally turned up a dozen or so, from perhaps well over a hundred plants. Jack, ranging far afield while I worked over this one spot, had not come upon the plant at all, nor upon anything else of interest. After the next-to-the-worst meal of the trip at Kemmerer, we decided that Wyoming had tantalized us long enough, and headed for the perhaps greener fields of Utah.

(To be continued)

AROIDS FOR THE ROCK GARDEN

R. GINNS, *Desborough, Northants., England*

ONE OF MY FAVORITE BOOKS for light reading is "Plant Geography" by Schimper, a weighty tome of 840 pages, one of the chief attractions of which is the numerous illustrations of plants growing in their native habitats. An illustration that I have often studied is one of the rain forest of Chiapas in southern Mexico. Here the tall trees are draped from top to foot by the stems and roots of a species of Araceae. This plant family consists of well over a hundred genera and more than a thousand species, mostly tropical. Owing to their great diversity they take a prominent place in the tropical scene. There are lianes such as the well known monstera, epiphytes such as anthurium whose scarlet flowers are found in florists' shops, and a variety of terrestrial herbs.

These tropical plants do not concern us, but there is quite a variety of genera and species that can find congenial homes amongst our rocks and in the bog gardens that we often associate with our rock work. They are to be found in all parts of the temperate zone and, whilst many are not very showy, they appeal irresistably to what Jason Hill calls "the Curious Gardener."

Arisarum proboscideum is one of the most curious of these plants. In spring it forms a dense mat of more or less sagittate leaves among which are half hidden the very amusing flowers which look like a flock of mice burrowing in the ground

with their tails waving in the air. The resemblance is in both colour and shape, and more than once visitors have been taken in. The foliage soon disappears. The genus should not be confused with the American *Asarum* which belongs to another family, the Aristolochiae. Members of this family, incidentally, are just as interesting as the Araceae. The arisarums form a small genus from the Mediterranean area.

Much more showy are the Arisaemas, Asiatic plants in the main, although from North America comes *A. triphyllum* with a brown-striped spathe. Beautiful as well as curious is *A. candidissima* from dry ledges of the Chinese alps. Its broad trifoliate leaves take on pretty bronze shades in the autumn. Clay states that the spathe is pure white, but in the form that I grow the white is marked internally with pink horizontal stripes. The flower is also of a good size. It prefers a dry, sunny spot. *A. consanguineum* has its foliage palmately cut into long narrow leaflets whilst the spathe is luridly striped. *A. flavum*, in spite of its name, has a deep purple spathe with green veins. It has recently been introduced from the Himalayas. *A. ringens* from Japan has a spathe externally coloured green and brown, whilst internally it is purple. Its foliage is its main attraction as the surface is amazingly shiny and invariably attracts attention. There are several other species which I have not grown, but in 1939 seeds were received which had been collected by the Chinese botanist Dr. Hù. For years all these gave me were trilobed leaves on long stalks. Then a few years ago came the flowers, long narrow and green, from which protruded a long filament—a really weird effort. I also have a plant bought as *A. amurensis*, a name not to be found in my reference books. I suspect that it is not an Arisaema but an Arum. The flower appears before the leaves are fully developed and is large but rather flimsy and floppy, very pale green in colour. The beauty of this plant appears in autumn when the place of every spathe is taken by a spike of bright scarlet berries that are not too palatable to the blackbirds.

Amongst the Arums is the English *A. maculatum*, known to the children as "lords and ladies" on account of its monoecious flowers, also as "cuckoo pint" as its flowering coincides with the arrival of the cuckoo. Its handsome, arrow-shaped leaves are a shining dark green, heavily mottled with mahogany. It is an interesting example of fertilization by flies, which are attracted by the somewhat foetid smell. There is a constriction near the base of the spathe, guarded by downward pointing hairs. These imprison the flies until fertilization has been carried out, when they wither and allow the flies to escape. This plant also produces spikes of scarlet berries and numerous self sown seedlings, the result of the appetite of the blackbirds.

More showy, but less hardy, is *A. creticum*. The spathe is bright yellow with a yellow spadix or white with a red spadix. The large spathe flops back and regard must be had to the size of the leaves when planting. In its native Crete it inhabits screes, so here it looks best in a sunny position among rocks.

A. italicum var. *marmoratum* is useful for its arrow shaped foliage which is beautifully marked with white. As these appear in autumn and last through the winter it is appreciated for decorating some shady corner that is otherwise difficult to fill.

Only suitable for large rock gardens is *Arum dracunculus* which reaches three feet in height. The thick fleshy stems are marbled and mottled in green, cream and black. The spathe is dark purple and the spadix almost black. The Levant contains a number of other more or less lurid coloured species which may or may not be hardy—they have not yet come my way.

A weird little thing is *Biarum davisii* from Crete. The flowers appear in autumn before the leaves and are only an inch and a half high. The spathe is

closed for most of its height whilst the tip is bent over the curved spadix. They have been likened to miniature penguins in shape, although the colour is pinkish brown.

Many years ago I received tubers of a small plant labelled *Pinelia tuberosa*, a name that I have not found in my various reference books. In summer it produces a queer looking flower which I point out to my visitors as my baby cobra. It is tall, slender and green, the top part of the spathe being expanded like the hood of the cobra, whilst the tip of the spadix protrudes like the reptile's tongue. It is more interesting than beautiful.

If a water garden is included with the rock garden, the following additional genera can be included. *Lysichitum camtschatense* looks imposing by the water's edge. Its large white arums are produced before the leaves in March, after which comes a mass of huge, somewhat fleshy leaves. The ripe seed heads lie on the boggy ground and look like a mass of frog-spawn. *L. americanum* is similar, apart from its bright yellow spathes.

Zantedeschia, formerly *Richardia*, is usually looked on as a greenhouse plant. But the well known *Z. africana*, the arum lily of the florist (calla lily in America), will survive the average winter at the bottom of a shallow pool provided the water does not get frozen solid. Then in June will appear a sheaf of the pure white spathes with their golden spadices.

REPORT OF NORTHWEST UNIT'S SPRING GARDEN TOUR

FLORENCE FREE, *Seattle, Wash.*

ABOUT SIXTY MEMBERS of the Northwest Unit of the ARGS braved some of the bitterest weather of the season to go on a garden tour. The date was April 22, which should have guaranteed a pleasant spring day, but snow was falling in Portland and Olympia a short distance to the south and it threatened to fall in George Schenk's garden where we met at ten in the morning.

Mr. Schenk's garden is located on a high hill on the east side of Lake Washington, and we were fortunate to arrive before an icy mist obscured the view. From the terrace in front of the house, the view is of miles of lake, dominated by Mt. Rainier to the south, with the city of Seattle on its hills to the west and the Cascade range beyond wooded hills to the east.

Below the terrace, winding paths lead through his alpine garden, truly alpine in its exposure to wind and sun. The somewhat gentle slope is punctuated with groups of alpine trees, and a long ridge of rock outcropping makes an ideal home for such rock loving native ferns as *Cheilanthes gracillima*, *Woodsia scopulina* and *W. oregana*, *Asplenium trichomanes* and *Polystichum lonchitis*. Other ferns not so familiar to us in the northwest were *Cheilanthes tomentosa*, *Asplenium trichomanes incisum* and *A. septentrionale*.

At this season of the year, trilliums and dicentras were in bloom. Among the trilliums were *T. nivale*, an alpine miniature from the Siskiyous, and *T. camtschaticum*.

The dicentras were many and varied, some of them wonderful hybrids of *Dicentra oregona* which Mr. Schenk said had appeared spontaneously.

Other plants in bloom were the tiny *Asperula suberosa* and the shrub-like *Convolvulus cneorum*, and the natives, *Erigeron aureus* and *Romanzoffia sit-*

chensis. A piece of mountain wood was ablaze with the blue flowers of *Clematis macropetala* which Mr. Schenk had raised from seed.

In the shelter of an alpine tree one was often startled to see the softly shining yellow flowers of the Juno iris, *Iris bucharica*, an orchid-like beauty.

This slope garden contains between 1050 and 1100 species and varieties of plants and one visit to it is no more than a teaser. What new wonders each visit must reveal! We all agreed that the chill mist sweeping across it added to its beauty, but no doubt when the sun beat down on it in summer, we would find that equally appropriate and beautiful.

As it was, we tarried as long as endurance would permit, and then retreated to the terrace where Mrs. Schenk served us coffee. While enjoying its warmth we examined the bonsais here displayed. Mr. Schenk said that a ginkgo which we admired "began as a wild tree collected in the rocks of the Japanese Alps just after the war." He believes it now to be about fifty-five years old. There was an ancient pine, *Pinus parviflora pentaphylla*, trained into the classical Japanese form. Native trees were larch and Douglas fir, as well as *Abies lasiocarpa* and *Pinus albicaulis*.

A very interesting planter box on the terrace had been made watertight with a brushed on plastic preparation and planted with *Darlingtonia californica*, *Cypripedium californicum*, *Habenaria* species, and *Heloniopsis japonica*. Three *Sarracenia* species were grown in bonsai bowls without drainage holes. Mr. Schenk said that these plants handle very readily this way and that they catch bugs by the quart.

After thanking Mr. Schenk and his mother for their hospitality, we made a short trip to the second garden on our tour, the garden of Mrs. George Manthey. It was a short distance as the crow flies, but it was miles away in character and appeal, for this was a lowland garden. It was located in a ravine at the foot of the hill we had just left. Through it flowed a lovely woodland stream and groves of vine maple, *Acer circinatum*, arched overhead, and were themselves topped by the big-leaf maple, *Acer macrophyllum*. Practically all the plant material along the stream and on the sides of the ravine was indigenous, but horticultural material had been introduced near the house. It was so carefully placed that one scarcely realized that such things as skimmia, pieris, and the lavender azaleas growing under an old fruit tree were not also native. In place of a lawn around the house, an extensive bed of low heather laced with narrow footpaths blended perfectly with the woodland setting. Paths led beside the stream, across rustic bridges and up the sides of the ravine. Stumps of the original coniferous forest were covered with moss and supported plants of red huckleberry, *Vaccinium parvifolium*, and *Gaultheria shallon*. In many places *Trillium ovatum* and *Vagnera amplexicaulis* bloomed and along the stream grew *Adiantum pedatum*, *Dryopteris dilatata* and *Athyrium filix-femina*.

It was an enchanted spot. Mrs. Manthey felt that it was a low-maintenance garden, but it was so only because of her skill and restraint. How many of us could eliminate nettles and blackberries, cut through paths, open a view to a beautiful dogwood, open the area around the house to sunlight, and still not ruin the delicate balance of light and shade and humidity necessary to the happiness of the finest flora and discouraging to some of the pests? How many of us could introduce exotic material into such a setting with so much skill and restraint that the feeling of naturalness was enhanced instead of destroyed? It may appear easy, but the fact is that it is far easier to make irrevocable mistakes.

We feel that Mrs. Brian Mulligan, our program chairman who planned this memorable day for us, did a wonderful job in finding two gardens so completely different and yet so full of interest to the members of our group.

PLANTS OF NORTHWESTERN WISCONSIN

NEVADA E. SCHMIDT, *Sarona, Wisconsin*

AMONG THE PLANTS to be considered in this article are some from the north shore of Lake Superior and from the Upper Michigan Peninsula, as well as those from northwestern Wisconsin.

Washburn County is where we live, in the cut-over, burnt-over Wisconsin region where there have been many plant successions; where the hardwood belt meets the jack pine country in this glaciated area. Back about 1908, when fire had swept much of this territory, the trailing arbutus, the shadberry and the blueberry were plentiful, *Trillium grandiflorum* whitened the fire-blackened hill-sides in spring and the bracken fern sprang up everywhere. Today the wooded areas have come back and we must go to the clearings and open woods for many plants which once were common hereabouts.

Observing these successions, one comes to think often in terms of plant associations, of plants that grow together in tight or loose colonies. For example, on the prairie southwest of here, you look for yellow star grass, prairie smoke, puccoon, and blue-eyed grass. On rocky ledges you look for ferns, where on limestone or dolomite you may find the walking fern, the maidenhair spleenwort, the holly ferns and the rare hart's tongue. Therefore, a knowledge of the various soils and rock compositions within a territory is essential to an understanding of its vegetation.

Slightly to the north of us, many seedling balsam, spruce and arbor vitae grow in the road ditches. We dig these seedlings and set them out in our rock garden, leaving them until three or four years old, or even seven. Then we dig them up and transfer them to the wood lot, as they have a beauty of form in these early years which they soon outgrow. Then there are *Juniperus communis* which grows on the sandy stretches along Lake Superior, and the Canadian yew which inhabits swampy lands; they both do well in a rockery.

Ferns are a great asset to the rock garden because of their attractive lacy fronds which also offer shade to many a shade loving plant such as the goodyera. The florist's fern, *Dryopteris spinulosa*, upright in growth, takes well to even sunny locations, so that one can grow a small colony of shade lovers in a sunny location if sheltered by dryopteris. We have a patch of mountain heather growing luxuriantly shaded by a fern. We have also a colony of lady fern which has grown for over thirty years behind a stone bench; this kind offers a pleasing background for many plants. Then there are the ferns that are of interest as individuals, such as the bulblet fern, *Cystopteris bulbifera*, with long tapering fronds. It is at home in a moist shady location. Place it well away from walks since the fronds are more or less horizontal and extend out two feet or more. The bulblets occur on the underside of fronds of the more mature plants. Braun's holly fern, an inhabitant of rich woods, is easily identified by its blade which tapers both ways from the middle and is chaffy on the under surface. It is an evergreen with vase-like growth. We have one specimen doing very well in a moist location in partial shade. *Polystichum lonchitis*, another holly fern, grows on dolomitic rocks in the Upper Michigan Peninsula. Its shiny, coriaceous fronds are truly beautiful. We have several growing out of rocky ledges where we give them a sprinkling of powdered dolomite from time to time. We have found it, as stated in Gray, with ascending rhizome stout, densely covered with old stipe bases, decaying fronds and chaff, and terminated by a dense crown of spreading new

fronds. The rattlesnake fern, *Botrychium virginianum*, is our commonest and best known botrychium. It is frequent throughout the state in rich, damp-shady woods. The sterile frond comes in early June, the fertile follows later in the month. It is a stout grower. The leathery grape fern, *Botrychium multifidum*, is infrequent and local in this section. It has intrigued me ever since I found my first one in an old, dry pot-hole. The several more that we have found have always surprised me as they were growing in strange dry locations. They are recorded as growing along lake shores, in damp places. Because of their late appearance in June they should be well marked in the garden. I will never be content until I find *Botrychium lunaria*, the moonwort. It is a tiny fellow and is undoubtedly the rarest fern in the state, since no one has recorded it growing since 1897.

Many of the clubmosses can be introduced and grown in a shady, damp section among the rocks. The running club moss, the ground pine and ground cedar are all native to this region. Naturally they prefer acid soil. I do not grow them as they do not appeal to me.

Equisetum scirpoides, the sedge-like equisetum, grows in tufts and looks much like a little snarl of fine green fishline. The stems are curled and wavy. It grows in cool woods and open places in tamarack and black spruce swamps. I associate it with the showy ladyslipper. We have a tuft of it growing in the shade of Braun's holly fern.

Now for some of the flowering plants that are in variety in this territory. *Calla palustris*, wild calla lily, grows abundantly in sloughs and quaking bogs. It has long creeping rootstalks from which the leaves and scapes arise. The spadix is short-cylindric, the spathe white. It will adapt itself readily to growing in a wooden tub that is sunk in the garden and filled with sphagnum moss and water. Its small calla-like bloom comes in June and is followed by heads of green berries that later turn red, a delightful touch.

We have both the wood lily, *L. philadelphicum*, and the western turk's cap lily, *L. michiganense*. The wood lily is found along open woods, railroad cuts and roadsides. The flowers, one to five, are erect, open-campanulate, an attractive deep orange-red with purple dots within. The western turk's cap attains a height of two feet or more. It has from one to several nodding recurved flowers from red to orange, spotted within. It grows in swales and wet prairies. Although there is some question about the suitability of these lilies for a rock garden, we have found that they blend in well when planted with maidenhair fern among rather fair-sized rocks.

Yellow adder's tongue, *Erythronium americanum*, produces in flowering plants a pair of basal leaves with a naked peduncle bearing one nodding, bell-shaped flower. It is especially attractive because of its mottled leaves. It is a native of rich woods, and when given a suitable home will multiply by seeding down in nooks and corners, a most welcome sight in early spring.

Iris lacustris is a small version of *I. cristata*. It is found in sandy woods and bogs of the Lake Superior country. I have seen great mats of it in bloom among openings in spruce stands, on the Upper Michigan Peninsula, associated with ram's head ladyslipper, *Primula mistassinica*, *Calypso bulbosa*, *Polygala pauciflora*, *Pinguicula vulgaris*, and *Sarracenia purpurea*, with an occasional *Corallorrhiza maculata*, all in bloom at the same time. We have found that the iris takes kindly to cultivation and spreads with ease. The blue flowers come into bloom around May 15 in Washburn County.

The Orchid family is well represented throughout this northern country. One's choice of species will be determined by height, depending on the type of

rock garden one has. I shall name but a few of moderate height. There is the ram's head lady-slipper, six to eight inches tall, which responds readily to transplanting. It blooms in late May and early June, with solitary flowers of madder-purple streaked with green, not conspicuous. At one time when the author considered it rare, we came upon a fine patch of it under trees on a dry hillside up in the Porcupine Mountains, and again, growing as thick as weeds in a beach bog. *Cypripedium parviflorum* var. *pubescens*, the yellow lady-slipper, is common in the woodlands of Washburn County. We have witnessed great patches of them destroyed by road building crews. This lady-slipper is about ten inches tall with one or two yellow slippers per stalk. Magnificent clumps in full bloom in early June overhang the moss-banked road cuts in the Peninsula. *Cypripedium candidum*, the small white lady-slipper, is plentiful in the swampy ground near Manistequette, Mich., and also on the wet prairies of western Minnesota and southern Wisconsin. It is six to eight inches tall with but one flower per stalk, and does best in calcareous soil. It has not been my good fortune to see it in the wild, although we have a nice clump in my garden. *Cypripedium acaule* is common to the dry acid soil of Washburn County. It also grows in tamarack bogs and we have found a nice colony on a sandy lake shore. It attains a height of from ten to twelve inches. As a general rule there is one flower per stalk. The inflated sac is pink with a slender fissure extending down the front. It is most adaptable and adjusts itself to varying environments. About twenty miles to the south of us in the rocky Barron Hills *Goodyera pubescens* grows in colonies. They are evergreen plants whose handsome leaves are in a flat rosette curiously mottled by the three or four white nerves and the many fine reticulate veins. The flowering stalk, eight to ten inches high, appears about June 20, with flowers along its upper third. A colony of a hundred or more makes an impressive showing when in bloom. We grow about one hundred fifty plants in a bed under pine trees, into which has been spaded crushed rock and sand. We rescued these plants from in front of a ski-jump construction crew. They have grown beautifully and have sent out many small new rosettes. We have five little rascals of *Goodyera repens* which grow in the shade of a leaf of *Bergenia cordifolia*. The rosette is the size of a quarter, and the flowering stalk about three inches tall. *Goodyera tessellata* is larger than *G. pubescens*, with a twelve inch flowering stalk. Both of these latter rattlesnake plantains are also common to Wisconsin.

Hepatica americana grows in open woods and is one of our earliest spring flowers. Its hairy heart-shaped leaves are found growing in clumps close to the ground, remain green throughout the winter, and not until after spring flowering do the new leaves appear. The flowers are rose, white, or bluish—a kindly and obliging plant for the rockery.

Waldsteinia fragarioides, the barren strawberry, is a low-growing herb with three-parted leaves and a yellow strawberry-like bloom. The wedge-shaped leaves are most attractive. It is common to the dry sandy woods of northern Wisconsin and often forms neat clumps on the shady side of road cuts.

Potentilla anserina, silvery cinquefoil, sends out runners much like a strawberry. The leaves in tufts from the stolons are silky tomentose underneath. The surface stolons can be held in check. *Potentilla fruticosa*, shrubby cinquefoil, is a shrublet that blooms from early spring to fall. We have found it growing in tight crevices along the north shore of Lake Superior in the company of *Campanula rotundifolia*, *Potentilla tridentata* and the common polypody fern. It takes well to cultivation and if grown in lean soil stays within a height of eight to ten inches. *P. tridentata* is a good ground cover for dry sandy soil, but not among one's rocks, because it travels far underground. It looks well with *Juniperus communis* which it cannot crowd out. It has white flowers, palmately com-

pound and shiny. It is found associated with false anise, New Jersey tea, bearberry and puccoon on railroad cuts and road banks.

Geum triflorum, prairie smoke, is a perennial from a short, thick, horizontal stem that grows just below ground. Leaves covered with soft hairs are mostly at the base of the stem. Flowering stems are reddish, bearing reddish nodding flowers that never open wide. In fruit it is strongly plumose, which accounts for its popular name. It is best grown in gravelly soil, because it becomes too leafy and blooms poorly in rich soil. It requires sharp drainage and shows to good advantage if grown on a slope. This is an attractive and popular spring flower on the prairies of the West.

Viola pedata var. *lineariloba*, the bird's-foot violet that has the petals all colored alike, blooms even into November in northwestern Wisconsin. I consider it a jewel, demanding so little, yet always having its crown packed with buds ready to bloom at any favorable moment from early spring through summer, fall and winter. When the plants attain size they can be readily parted into single crowns again. It is native to this region, and we know of a large colony that thrives on top of a railroad embankment where the soil is thin and gravelly.

Viola adunca, the little sand violet, is also a native of Wisconsin and is widely distributed through many other states. It is low growing, densely tufted, with leafy prostrate stems. The blooms are held above the leaves and even a tiny plant will bury itself beneath a cover of dainty blue flowers—an early spring bloomer and a dependable plant for that dry sunny spot among your rocks.

A little stretch of sandy soil shaded by pine trees became a replica of a beach bog without our planning it that way. A few *Primula mistassinica* were planted; they bloomed and seeded down so that now we have a great number of seedlings crowding one another for room. We have pitcher plants growing flat on the sand; *Parnassia glauca*, that blooms in September; a little hole full of sphagnum moss harbors *Drosera longifolia* with *Lycopodium inundatum* close by. A bed of the dainty butterwort and spreading mats of *Iris lacustris* fill out the sand flat much as in a typical beach bog. Ram's head lady-slipper with seedling arbor vitae acts as a backdrop to complete the unusual picture.

A close cousin to the bladderworts, *Pinguicula vulgaris* is a curious little plant known as the butterwort. We have collected it in the damp crevices along the north shore of Lake Superior, we have seen beds of it in bloom in a beach bog on the Upper Michigan Peninsula. It grows but three to four inches high, with oblong spatulate leaves clustered at the base of an erect stem that bears a single nodding, two-lipped violet flower. The leaves have a greasy feeling since they are provided with a viscid secretion in which insects are trapped. They are shy little elfin-fairy plants easily adaptable to a sandy moist location.

It is in the scrub oak and jack pine country on sterile acid soils that one goes a-blueberrying. More often than not the day is hot, and the aroma from the sweet fern, *Myrica asplenifolia*, is everywhere. The scarlet tanager calls from atop a nearby pine; the scream of the red-tailed hawk is heard again and again as he soars in ever wider circles in a cloudless sky. Hidden beneath the many little shrublets, *Pipsissewa*, *Chimaphila umbellata*, the shinleaf, *Moneses uniflora*, and *Pyrola rotundifolia* var. *americana* are in bloom; *Gaultheria procumbens* weaves its way in and out around the rotting logs and stumps. Patches of bearberry are on the drier hummocks; *Vaccinium caespitosum* is loaded with blueberries; *Mitchella repens* covers the mossy banks of the old logging trails. In my opinion, if a rock garden lacks interest, the plants of the Pine Barren country of Wisconsin will give it an individuality and a beauty that cannot be surpassed.

AFTERTHOUGHTS ON THE CONFERENCE

C. R. WORTH, *Ithaca, N. Y.*

THE ACCOUNT OF THE CONFERENCE which appeared in the July *Bulletin* was dashed off hurriedly, immediately on my return, to meet a printer's deadline. As my head was crammed with impressions and ideas which are still being sorted out, some details were deliberately omitted, while others have on reflection assumed more importance and interest than was at first apparent. Perhaps some readers will be interested in further comments, others already bored, but shortage of material for the *Bulletin* (very little has been received during the past few months) demands publication of more reminiscences.

One evening that from its subject promised little of interest to me turned out to be most entertaining. It was the symposium on Shows, Showing and Judging. Dr. Henry Tod (who apparently has suffered as both exhibitor and judge) opened the session with a series of critical and amusing remarks on the behavior of exhibitors. We learned that some of them bring in their plants late, so that they can see what competition they must meet in various classes, and then enter their pets in the ones where they will show to best advantage. Others postpone selection of the plants they will show until they learn who the judges will be, then choose the ones that they believe will be especial favorites of those who will award the prizes. Some, if we understood correctly, are even guilty of rearranging competitors' exhibits so that they will show to less advantage. All this was startling news to us, for while we had suspected that an occasional plant (in a class for three or six) was included for its obvious effect on the judges, in most cases the exhibitor seemed to have brought in the plants which he or she grows best, and which might be of most interest to visitors. We had a firm conviction that many of the exhibits—some of those by Mesdames Boyd Harvey, Greenfield, Griffith and Saunders are among the ones that come to mind—were designed not to dazzle, but to show what progress was being made in the cultivation of new and difficult plants. The judges, from their awards, were apparently of the same opinion. Perhaps Dr. Tod's remarks are applicable to some of the smaller shows only, and to less experienced exhibitors. Discussion of the points raised was lively, both from other members of the panel and from the floor.

Will Ingwersen, at the symposium and elsewhere during the Conference, frequently stressed the importance of growing plants in character. We raised the question of how judges could decide whether a plant which they had never seen before was, or was not, in character. The reply was, in effect, that the judges have so comprehensive a knowledge of plants that they have no difficulty in arriving at the correct conclusion. That may well be true in Mr. Ingwersen's case, but we understand that he does little or no judging. There were, to our knowledge, several prize-winning plants that were completely out of character, notably a specimen of *Lepidium nanum*. Instead of the rock-hard bun of the Nevada deserts, it grew loosely and looked exactly like the little cress which it actually is. Our hat is off to the man who succeeded in growing and flowering this intractable brute in any condition under the cold gray skies of England. But what good is accomplished in displaying this travesty of a fascinating little bun? Certainly few who saw it could have coveted it. I agree with Mr. Ingwersen—let the plants be in character, or keep them off the show bench.

The question, "What is a suitable rock garden plant?" cropped up when a magnificent specimen of *Celmisia* (we cannot recall the species) nearly two feet through and even taller, lugged all the way from Ireland, was ruled out as unsuitable for the rock garden. Presumably the disqualification was on size alone.

Yet even taller meconopsis plants were exhibited, without protest, while enormous rheums and a three foot thistle of our Rockies are undisputably high alpines. Hardly suited to the scale of the average rock garden, are they to be excluded from shows merely because of size?

So far as habitat goes, the plant of *Pyxidantha barbulata* brought over and exhibited by Mr. Epstein in flower is about as far as possible from alpine. It won a first prize and elicited many covetous comments.

Forms of *Viola papilionacea* appeared in three exhibits at London. One hopes that their owners, having won prizes, will dispose of them at once, before they take over the entire garden or alpine house—they have annexed a considerable area of my lawn, and persistently send scouting parties into the rock garden itself. Certainly they cannot pass the test for suitability, regardless of size and attractiveness.

Nor could we fully approve of the many trilliums shown, as suitable for the rock garden itself; they belong in the woodland or in the shady environs of the rock garden, not among the alpines. Rhodohypoxis, showy but rather tender, and now displayed in a wide variety of named hybrids, were likewise, to us, out of place, as were the pleiones mentioned in July. Our objection, they look too sophisticated to take a place beside the mountaineers.

Various plants which we have grown poorly, or not at all, when seen in excellent specimens fell far below our expectations. Perhaps Farrer's too vivid prose, and artful photographers, have led us to anticipate qualities that are non-existent, and to overlook less obvious virtues, but we now feel that some plants with which we have long struggled are not really worth the effort. Or are they—provided they grow in our own collection? What may be these plants which we feel to be overrated we shall never reveal, lest we be cast out of all the rock garden societies as a heretic.

From time to time, among all the magnificent specimens of species with which we have had only limited success (or none at all), we would meet one of which we could honestly say, "I can do that as well, or better." Perhaps we should quit looking at the grass on the other side of the fence, but if we did, where would be the thrill of flowering some cantankerous beauty after many unsuccessful attempts?

One item in British catalogs that has long intrigued us has been the numerous varieties of *Phlox douglasii*, which seemed to be even easier and more popular than *P. subulata*. How could the British be successful with this species which is so difficult for us, and with none of the other westerners? (There were a couple of plants on show of *P. adsurgens*, and a notably magnificent one of the mysterious *P. "mesalauca."*) Several plants at the London show answered that question, but raised another: what is it? Perhaps Dr. Wherry can answer that. For *P. "douglasii"* is like no westerner that I have ever seen, roughly a smaller and smaller flowered *P. subulata*, although the foliage, which varied among the clones shown, is slightly different. It has, apparently, the needs of our familiar easterner, and leads me to wonder whether it may be the result of hybridization between that species and some more typical western one. At least, there is no longer need to envy the British their success with this one of our problem plants.

As one of my statements was subject to misinterpretation, it is only fair to BOAC to mention that my misplaced luggage was not the result of carelessness on their part, but on that of the helicopter service over New York City. All of the BOAC employees displayed a friendly courtesy and helpfulness which some of our American transportation systems might profitably emulate.

Those who blame their difficulties with plants on the soil of their gardens, should have opportunity to examine the atrocious soils underlying the magnificent gardens of the Knox Finleys and Captain Mooney. Anything worse, even adobe clay, can hardly be imagined. Yet by skillful treatment of the topsoil, largely with humus in the first garden and coarse river gravel in the second, superlative results have been achieved. The question is, though, does the British climate make possible luxuriant growth in a thin layer of suitable soil, where ours would prevent any success?

Which, of all the plants that we saw and do not grow, would we most like to be successful with? A most difficult question to answer, but perhaps dionysias and *Primula allionii* would head the list. Which, new to us, should be watched for in seed lists? There was a lovely dwarf thalictrum with huge colored sepals, shown as *T. orientale*, which should be as easy as it is charming. *Adonis brevistyla* is a foot or so high, with large white flowers; I believe I had this—certainly something similar—many years ago as *A. chrysocayathus*; neither Farrar nor Clay give descriptions that fitted Mr. Cooke's plant. A little broom, which I hope I remember correctly as *Cytisus hirsutus demissus*, had enormous bicolored flowers on delicate prostrate plants. *Saxifraga* 'Southside Seedling', previously mentioned, I should greatly like to add to my collection. An incredibly beautiful little cassiope on Drake's table, with dense racemes of enormous lilies of the valley, defies propagation, so that I am not alone in coveting it.

But this list could be stretched out endlessly, and there is but one thing to do: search the literature whenever one finds an unfamiliar name in the seed lists; if it sounds promising, try to get a bit of seed—and then to grow the plant. We have barely scratched the surface of plants that we can grow and that are worth every effort.

CAMPANULA PUNCTATA?

EDWARD EAGER, *New Canaan, Conn.*

Campanula punctata is described temptingly by Farrer, Mrs. Wilder and others, with talk of "long creamy rosy bells spotted with red", or similar engaging words. It was long on my want list and two years ago I was pleased to find seed for sale. I forget which nursery supplied it, and perhaps it should be nameless.

The seed germinated in profusion, the seedlings prospered, and I watched for the flowers. When they came, the bells were long, all right, but the color might best be described as old plum underskirt, or perhaps a grape all-day sucker that had been sucked all day, sort of a thin pinkish-mauvish-grayish. And in the fall each plant not only seeded in all directions but sent out progeny from the root.

I think that what I have must be the *punctata* hybrid 'Marion Gehring', described somewhere by Mrs. Wilder as the only unattractive campanula she had come across. Does anyone know this plant, and am I right?

My specimens have now been removed, some to the wild garden, others to the compost heap. As frost came I was still digging out masses of white rootlets like lastex thread.

This winter I am trying *C. punctata* and its relative *C. burghaltii* from the seed exchange. Better luck this time, I hope?

AMERICAN ROCK GARDEN

Treasurer's Report

For the Year Ending March 31, 1961

Cash in bank at March 31, 1960			\$4,227.89
Income for the year:			
Current dues—1960	\$ 542.00		
Life membership	150.00	\$ 692.00	
Prepaid dues:			
1961	\$1,926.50		
1962	172.20		
1963	99.00	2,197.70	
Sale of Bulletins			170.10
Advertising in Bulletin			164.81
Seed exchange			139.60
Plant sale at annual meeting			184.95
Sale of books	\$ 296.53		
Less—cost of books	271.56		24.97
Gifts			12.00
Interest on savings account			40.49
			<u>\$3,626.62</u>
Expenses for the year:			
Bulletin expenses			
Printing	\$1,598.00		
Cuts	150.10		
Mailing and postage	160.82		
Editor's compensation	300.00		
Mailing permit	20.00		
	<u>\$2,228.92</u>		
General expenses:			
Secretary's compensation	\$ 372.00		
Printing and stationery	192.05		
Seed exchange expense	266.47		
Postage	210.59		
Telephone	7.15		
Office supplies	29.39		
Meeting expense	10.00		
Dues to American Horticultural Society	8.00		
	<u>\$1,095.65</u>		
Total expenses		<u>\$3,324.57</u>	
Excess of income over expenses for the year ending March 31, 1961			<u>302.05</u>
Cash in bank at March 31, 1961:			
Citizens First National Bank & Trust Co.			
Ridgewood, New Jersey:			
Checking account		\$3,036.08	
Savings account		1,493.86	\$4,529.94

Respectfully submitted,
Alex D. Reid, Treasurer

HELP!

The cupboard is bare, we are scraping the bottom of the barrel, the bank account is overdrawn, creditors are at the front door and the wolf is howling at the back. In plain words, we have not sufficient material to fill the January *Bulletin*. Little has been received during the past year, and several promised articles are still awaited. We've held over a couple of articles, and have padded as best we could with our own drivel, but many blank pages stare us in the face.

Do you want your January *Bulletin*, and the seed list, on schedule? It is up to you. Copy must go to the printer by the end of October if there is to be no delay in publication, and if we don't have it, we can't send it.

The *Bulletin* consumes about sixty double-spaced pages of material per issue, nearly two hundred fifty in a year. Most of this is supplied, as one can see from the Index, by a very few contributors, to whom we are all greatly indebted. But we cannot persist in hounding them to supply articles for which they receive no pay, and they must have opportunity to grow new plants and to have new experiences before they can write more. There are many members who can write but never have done so, and it is time that they repay their debt to those who have made the *Bulletin* possible.

Remember, no material, no Bulletin!

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