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C. R. Worth, Editor

Vol. 18 January, 1960 No. 1

"BACK ACRE" OR BACK ACHE-R?

C. NORMAN WADE, *Butler, N. J.*

WE CALL our place "Back Acre" because that is what it is, an acre out of sight of the country road that leads to it. It is secluded in the mountains of northern New Jersey, behind a cliff of grey rock that slopes down to a pond called Hoot Owl Lake. When we first saw it we thought of it as a retreat where we could loaf on week-ends, with no lawn to mow and no hedge to trim. But it turned out to be a "bull-by-the-tail" (to quote "Ed" Totten, one of our sources of inspiration—Edgar S. Totten, Secretary, American Rock Garden Society). Actually, it was a gigantic rock garden in disguise, with the emphasis on "rock". Whether we could make a garden out of it depended on the struggle between our hopes and the threat of futility.

Our over-size acre is nothing but rocks, trees, and leaf mold. The outline of the lot, in its horizontal projection on a map, resembles a wedge of pie—the point being the entrance to the property and the "crust" (about 450 feet) bordering a pond. This is man's way of defining real estate, but Nature's way is not so formal. She threw up a rock ledge at the approach to the lot and from there fanned it downward to a pond.

The pond area was originally a low, boggy region in a hollow circled by hills. Long before our arrival, this swamp was dammed at the southern end and bulldozed at the northern end to form a pond. The clay that was dumped subsequently became our only level surface. It extends about fifty feet from the edge of the pond to the foot of the rock slope. In time, Nature healed this over with wild strawberries, ferns, weeds, and a blackberry thicket. We never see any of the strawberries because the wild life gets there first, but each year "Ed" Totten and I go blackberrying.

Heretofore, our experience with rocks had been confined to the sedimentary rocks of western New York State; but now a new world of granitic and metamorphic rocks surrounded us—and I mean literally surrounded. We have rocks above, around, below, and sometimes on us, when occasionally one gets out of control and lands on a finger or toe. It did not take long to learn that heavy leather gloves, hard toe shoes with rubber soles, and knee pads were

essential working equipment in this ROCK garden. Rocks can bite if handled carelessly.

Our rocks, thanks to their variety of minerals, have beauty built in by eons of weathering, a process that started 2,000,000 or 10,000,000 years ago (not much difference in geologic time). The important fact is that Nature offers man the use of this rugged beauty. Plants come and go as the seasons progress, but the infinite splendor of these rocks endures around the calendar. All this, and mosses and lichens too, invited us to come and live in this niche of eternity.

PROBLEMS AHEAD

So much for philosophizing and day dreaming! Problems were ahead, and the first one was to make an access to the property. We did not know it at the time, but we later learned that we were the third owners attempting to build on this location. The other two had given up because of the road problem.

Strange as it may seem, our "backyard" is in front of the house. It is the rock barrier that must be surmounted in order to get into the property. This rock fortress stopped the first two owners and also the first two road builders we hired. Once the rock ledge is passed, the visitor gets his first reward—a view of the shimmering pond at the base of the hill, where racoons, muskrats, and wild ducks are our neighbors and the evening clamor of frogs, peepers, and tree toads gives the spring nights a raucous but happy cacophony. (My wife insists that the big frogs shake the house with their resonant booming.) On one occasion a guest from the city heard the frogs and seriously asked where we kept the cow.

The road builder was not concerned with our devotion to rocks. His problem was to make a turnaround for the garage area and he made it; but in doing so he gouged a gaping hole in the hillside that looked as though Nature's dentist had extracted a monstrous molar. After we had lived with this eyesore for about two years, we happened to join the American Rock Garden Society. Then we began to find solutions for our problems. Why not build a miniature rock amphitheatre in that cavity in the hillside? The most important component of the project—the rocks—was close at hand. The only work required was to roll them down the hill and guide them into place. In fact, this accomplished two jobs in one. It not only completed the rock part of that particular task but it removed many of the loose rocks that cluttered the hillside.

The first attempt at planting this "garden" was not successful. I made the mistake of having too much sand in my soil mixture. As a result, the runoff from heavy rains carried both it and the plants away. The rocks, however, stood fast.

Then came my next inspiration from an ARGS meeting—re-pack the soil pockets and plant sempervivums and sedums in the rock joints. These were planted last year and have held their ground despite the past severe winter with the heavy rains of February. In fact, one of the sedums *(S. sarmentosum)* was so much at home that it started to take over in all directions. This was my first experience with sedums, and I now know that *S. sarmentosum* likes to romp too much.

The building contractor, having no interest in preserving the natural beauty of the location, bulldozed trees and rocks in all directions to make a foundation for the house. The house thus became a scar on the hillside, completely cut off from the woods by a ring of sandy gravel. We could have made this intrusion look presentable by growing a lawn; but that would have been inconsistent

Photographs by C. Norman Wade

The "amphitheatre," viewed from above.

with our original intention of retaining the wilderness as nearly as possible as it was when we found it.

Here again, our practically inexhaustible supply of rocks was waiting nearby to offer help. We brought in top soil to cover the fill and anchored rocks in it. Then we planted dogwoods, junipers, pines, spruces, hemlocks, yews, bayberries, laurel, hollies, and other native shrubs. This planting closed the visual gap between the house and the woods, and the rocks linked the house to the hillside.

On all sides of the house we now have rock gardens that trail off into the woods or down the steep slope. They look so much a part of the woods that I have often wondered how we obtained that effect. As far as I am concerned, it was probably the result of desperation aggravated by a shortage of funds; but, as I look back on our efforts, I believe it is because we do not have any formal planting or hedges whose symmetry would clash with the shagginess of the woods. Hence, there is no well-defined cleavage between Nature's planting and ours. Also—and a big ALSO—there is no lawn around the house to isolate it from the woods. All of which makes the difference between being apart from the woods or a part of it.

NATURE IS BEAUTIFUL, BUT—

Nature is beautiful when She is on her good behavior, but we soon found out that when She is on the rampage we are sitting in the front row of the performance. No one said anything to us about where the water and trees would go if a severe storm hit—and it did hit, not once but twice and again and again. We happened to be home on two occasions and found out that water goes downhill fast and trees do not care where they fall. The water cascading down the driveway was an awesome sight, particularly at the bend in the road where the torrent continued straight ahead and plunged downhill to the pond. While

we were watching this spectacle we suddenly became aware that the hollies in the path of the water had disappeared. After that storm subsided, I went in search of them and found them at the foot of the hill near the edge of the pond. I brought them back and re-planted them. Two days later, another severe storm hit and the hollies went down to the pond again. These hollies have really traveled.

To correct the damage done by the rains and to prevent its recurrence called for major surgery at the bend of the road. The next time we might lose even the driveway; so we called in a landscaper to build a rock stairway that would serve as an exit for unruly water. By this time we knew we were committed to a permanent uphill fight against downhill water.

(Nature Notes: As part of the house foundation, the contractor had installed a 12″ drain tile under the house and down to the pond to divert some of the surface runoff. Subsequently, when the driveway was finally completed, the drain tile was automatically sealed off at its upper end and no longer fulfilled its original purpose. One day, very early in the morning, I was surprised to see two raccoons sitting at the lower end of the drain pipe. When they saw me, they scooted into the tile. Probably no other raccoons have such a satisfactory lair. They have since became very neighborly toward us and each night come up to the house for dinner. Last summer they brought their three little ones with them regularly, and as I write this, June, we are looking forward to an introductory visit of this year's litter. Possibly, we are not feeding the same two raccoons we fed last year, but we are definitely feeding a pair of raccoons who come on our terrace every night and take slices of bread from our hands. Incidentally, we also have frequent visits by deer, skunks, woodchucks, opossums, red and gray foxes, chipmunks, squirrels, and toads. Some of these members of Nature's family have their own ideas about what should be done to a garden, but gardeners soon get used to such problems.)

THE EASTERN SLOPE

The eastern part of the hill, as it approaches the pond level, presented a special problem. It involved a section where there was a steep slope of sheer rock, well littered with fallen trees. These trees were a little different from the usual fallen trees—they were not horizontal. They had toppled down the slope and were lying at an angle of about 150° from their originally vertical position. This was due to a 50% grade of the rock slope. (If the reader is unfamiliar with the significance of these figures, it will help to know that road builders try to keep the slope of a road less than 10%.)

These trees could not be sawed very readily in such a steep position; so they had to be pulled up the hill by means of a block and tackle. This presented a rather incongruous situation, as horizontal standing room was non-existent; but there was ample room for slipping and falling down the rock slope. With the block and tackle anchored to a standing tree and one end of the rope fastened to a fallen tree, I soon learned that the trick was to grasp the other end of the rope and lower myself down the rock slope. As I descended, the fallen tree ascended to a point where a three-foot log could be sawed off. I would then scramble back up the slope and lower myself on the rope for another three-foot cut. And so the slope was cleared.

This part of the slope was unbroken in its area and resembled a relatively smooth rock face with occasional irregularities that would catch enough leaf mold to support growth of coarse grass and weeds. It was hopeless to plant anything in that area that required much of a root system because once the

Rock stairway to prevent heavy rainfall from eroding driveway.

weeds were removed the rains washed the planting surface clean. Aside from that, it was physically difficult to plant anything on the slope because of its steepness. Crawling was the only practical working position. This does not sound too bad until you realize that it is unwise to crawl along the side of a slope and uncomfortable to crawl head first down a slope. Consequently, you crawl *up* the slope and you support yourself on one hand while you plant with the other. The oddity of this position is that you are usually working at eye level and in a very precarious stance.

Again I received an inspiration from attendance at the ARGS meetings. Why not remove the weed growth little by little and replace it with a carpet of sedums and sempervivums? By doing this in installments, the remaining weeds would protect the plants until they became established. A particularly welcome "weed", *Corydalis sempervirens,* found the steep, well-drained, sunny slope much to its liking. Its delicate gray-green foliage and dainty pink-yellow flowers stand erect to warn the visitor of the slope's treacherous angle, while its branching stems seem to be giving a blessing on its lowly neighbors.

Another advantage of this grouping is its appearance in the winter. Previously, the slope had looked forlorn with its dried weeds and grasses. Now, the evergreen characteristics of the sedums and semper vivums give life to the slope the year round, which is more than ample reward for our labors.

WILD LIFE SANCTUARY

Our efforts stop at the foot of the rock slope. At that point the land is level with the pond, and to make a "virtue out of necessity" we decided to let Nature do most of the planning and planting. She has done a very efficient though not very ornamental job in covering this clay patch at the foot of the slope and She has shown a strong preference for wild blackberries. Psychologically, anything looks better if it has an appropriate name; so we call it the Wild Life Sanctuary. The birds like the berry thicket. We like the birds. So everybody is happy with the arrangement.

To show Nature we appreciated Her efforts, we planted a larch tree in the area and three willows on the edge of the pond. The larch tree has never

been very happy with its roots in the clay base, but the willows provide an accent and shade that man and Nature like. Frequently, we see a pair of mallards or wood ducks exploring the bottom of the pond under the shade of the willows, and in the deep twilight before nightfall we have seen the raccoons playing in the high weeds. Occasionally, a deer comes down to the pond for a drink.

Then Nature tried to bar our entry to the Wild Life Sanctuary by extending her blackberry patch over the entire area. We could clean out the whole tangle and have a beautiful grassy plot that might be a landscaper's dream; but then we would not be close to Nature. Nature does not like lawns. So we compromised by maintaining a network of paths that wind thru the dense growth. Except on these paths, Nature may do as She pleases in the Wild Life Sanctuary.

The exposure of "Back Acre" is east and south, as tho it were on two sides of a pyramid. The Wild Life Sanctuary described above is located on the eastern side, and the southern section carries the rock slope less steeply but right down to the water's edge. Here, the rocks jut into the water. We call it the Picnic Point because we used to picnic there before we built the house. Nature is in charge here also and She has a magnificent display in the spring of shadbush *(Amelanchier canadensis)* and dogwood*(Cornus florida)*. We help Her a little here by naturalizing daffodils along the slope and planting cardinal flowers *(Lobelia cardinalis)* along the water's edge.

Currently, Nature is developing a dogwood thicket as close to the water as She can put it. We may have to help later by thinning it out a little for Her. She is also trying to raise a patch of partridge berry *(Mitchella repens)* on the thin soil, but She complicated her problem by mixing it with some coarse grass. We removed the grass and the partridge berry took over very happily—until one night last winter the deer made a good meal of it. The roots are still there, however, so, around the cycle we go again.

Now that I have brought the reader to the bottom of the slope, I am reminded that there is something on the very top of the hill I did not mention. It is a colony of pink lady slippers *(Cypripedium acaule)* Nature has tucked away in a flat area between protruding rocks. This is certainly a dry, well-drained spot and the only water it gets is the rainfall. Perched on the surrounding rocks and waving gaily in the breezes are polypodies *(Polypodium virginianum)* and Solomon's seals *(Polygonatum biflorum)*.

One day when we took "Ed" Totten for a stroll up the hill, he suggested that we take some of the rotted timber and bury it in a trench along the path for a fern bed. This trench now filled with leaf mold has become a bed for ferns we have collected in the neighborhood and to date we have twenty-five varieties. "Ed" also suggested that we fill a certain rock crevice and plant it with *Sedum sieboldi.* This spot is now affectionately called "Totten's Crevice."

GOAL OF ROCK GARDENING

When we stand on top of the hill and look over "Back Acre" we see the results of lessons we have learned. We also realize that we are beginners who are *really* just beginning. It has been tough to hold on to the "bull's tail," but we have not let go yet. In a physical way, we have learned some of the fundamentals of placing rocks. Now we know that only weathered rocks should be used in a rock garden or in any rock construction where the rock will be in view. This seems too elementary to justify the space required to state it, but I have a "raw" rock in one of my rock walls that is a glaring reminder that this precept must never be violated, not even in the interest of expediency.

The rock slope as seen from the house. The author works his way across the slope, replacing weeds with sedums and sempervivums.

We also learned that it is not a rock garden if the rocks do not look at home in it. Rocks must have that "belonging" look after they are in position, and they should be put *in* the ground and not *on* it. If the rocks are banded (stratified), they should be placed with the layers in a generally horizontal position—never stuck in the ground with the strata in a vertical position. Nature does the latter only as a result of a cataclysm, and that is not the spirit of a garden.

In a philosophical way, the concept of working *with* Nature is dawning on us. My wife and I have gardened before and the object was to achieve a harmony of color and form. But the goal in rock gardening appears to be a partnership with Nature. The end result is a one-ness between Nature and the gardener, the plants being the dynamic link thru which we learn Nature's secrets. That may be why the rock gardener admires the foliage as much as the blossoms. Since many rock garden plants are evergreen, this may also account for the fact that the rock gardener's interest in his garden extends throughout the entire year. Incidentally, Nature will tell us in no uncertain terms when the partnership ceases to be such.

Now we know that Nature is the senior partner in all our undertakings. For instance, we do not remove dead trees, unless they are a hazard. Dead trees may be a haven for insects, but we like to see the pileated, hairy, and downy woodpeckers remain close to the house. We also enjoy watching the bluebirds as they nest in the large holes left by the pileated woodpeckers. Nature has given us some hard knocks by some of Her washouts on the hillside, but each time we learned to build our terraces stronger and with exits for the water. On the other hand, it is a weekly joy to me to know that I have no grass to cut or hedge to manicure.

Has "Back Acre" been a back ache-r? Yes, it has; but it has been a thrilling way to get a back ache.

THE HEATH GARDEN

J. L. MOWAT, *St. Andrews, Scotland*

HERE IN THE EAST OF SCOTLAND we have had, and are still having, an unusually long-drawn-out winter of constantly alternating periods of frost and thaw, with frequent falls of snow, so that among all these rapid changes the Galanthus and Crocus species which are usually so colourful all winter have made a much poorer showing than usual; even the common snowdrops hardly seemed to be in flower before they were almost past again. One consequence of this has been to make me look at the heath garden with all my old admiration for heaths and heather re-intensified as I saw all those colourful varieties of *Erica carnea* standing there undaunted after each snowfall, their splendour undiminished.

For many years now I have made it a habit on Christmas Day to make a list of plants flowering in the open garden that morning and of the thirty-five or so different genera, species, or varieties, flowering on 25th December last no fewer than eight of them were varieties of *Erica carnea*, that hardy and adaptable Winter Flowering Heath from the hills of Austria, Switzerland, and other parts of southern Europe.

The majority of the heath family are a bit fussy in their requirements under cultivation, most of them demanding an acid soil with an abundant supply of humus (usually in the form of peat) and more or less intolerant of any suggestion of warm, dry conditions; this is particularly the case where our own *Calluna vulgaris*, or Heather of Scotland—Ling of England, and its many beautiful varieties are concerned. The Winter Flowering Heath, however, is quite tolerant of the presence of lime in the soil and will also do well in a variety of conditions including exposed dry parts of the garden where, apart perhaps from its relative the Cornish Heath, few members of the Ericaceae family will consent to grow.

To name the one best variety of *Erica carnea* would be an impossible task. There may be poor varieties — I know of none, but the most I can say is that there are many good ones, with some outstanding, which cover a season lasting from October to the end of the following April.

Usually the first to show colour in October is 'Eileen Porter,' a compact dwarf and slow-growing variety with a great profusion of rich deep carmine flowers deepening from somewhat paler buds; it is even earlier than the variety *praecox rubra* which it somewhat resembles though more dwarf and more floriferous. Another good variety which is regularly in flower before Christmas is 'Winter Beauty,' a good, deep pink carpeter which starts to show the colour of its flower-buds in November.

I have usually regarded varieties 'King George,' 'Springwood White,' and 'Springwood Pink,' three of the very best of the stronger-growing forms of *carnea*, as very much late winter-early spring flowerers but this season all three were well into flower on Christmas Day. They are all vigorous and strong-growing forms, and from their ease of cultivation and propagation coupled with their free-flowering qualities many gardeners, if limited to a choice of one variety of Winter Flowering Heath, would choose one from these three. 'King George' is a good rosy pink which at its peak is completely hidden by bloom; 'Springwood White' provides an excellent companion variety with paler green foliage and massed long spikes of large white flowers. 'Springwood Pink,' a more recent introduction and a pink variant of 'Springwood White,' is equally vigorous and floriferous and its clear, soft pink flowers have a great appeal for me. Another good mid-winter flowerer which was out on Christmas Day was

the rich pink 'Queen Mary,' another good grower but, I *have* heard, a somewhat unreliable flowerer, though not so with me.

Very early in the New Year numerous others appear in flower and among them comes another good white—'Snow Queen,' a very compact cushion type with light green foliage. Two varieties of outstanding merit, and desirable in any collection, are the deep carmine red 'Ruby Glow' and 'Vivellii' which come into flower in late January or early February. Even out of flower these two varieties are outstanding in their deep bronze green foliage.

My remarks so far have chiefly concerned the flowering qualities of the varieties mentioned and their outstanding value from this point of view in the more barren times of year; even when not in flower there need be no monotony or uniformity in appearance about a collection of *Erica carnea* varieties. There is considerable variety in habit of growth, from the vigorous wide-spreading types like 'King George' and the 'Springwoods' to the more compact and dwarf like 'Eileen Porter.' Foliage itself shows great variation too from the golden green of *carnea v. aurea* through the pale greens of 'Snow Queen' and 'Springwood White' to the darker green of *carnea* in general, till we come to the shades of bronze and bronze green of 'Mrs. Sam Doncaster,' 'C. J. Backhouse,' 'Ruby Glow,' 'Startler,' and 'Vivelii.' We also have the contrast of the cushion-like mossy growth of 'Snow Queen' to the more erect, upright habit of 'Loughrigg.'

This winter *Erica carnea* varieties were not the only heaths to be in flower on Christmas Day. Along with them were *Erica x darleyensis* and two varieties of *Erica mediterranea,* 'W. T. Rackliff' and 'Brightness.' *E. x. darleyensis* first appeared as a chance hybrid between *EE. carnea* and *mediterranea* and is a robust winter-flowering heath with characteristics intermediate between its parents. Slight variations would seem to suggest that the cross has repeated itself more than once and between varieties of its parents. One form is almost as early flowering as the earliest varieties of *carnea* and all variants seem to have in common a very long flowering season and a growth habit like a strong-growing *carnea,* attaining a foot or fifteen inches in height. *Erica x darleyensis* is somewhat paler in colour than most varieties of *carnea;* I would describe it as looking like a pale, more erect and stronger-growing 'King George.'

Erica mediterranea, the other parent of *x darleyensis,* also flowers very early in the year—its variety 'W. T. Rackliff' being one of those I listed as in flower on Christmas Day. This variety forms a compact, erect-growing bush of eighteen inches to two feet in height which is smothered in the first months of the year with masses of very pure white flowers—a great improvement on the older *mediterranea alba.* The best coloured variety of *mediterranea* is 'Brightness' —an equally compact and symmetrical bush producing in profusion bright rose-red flowers a little later than those of 'W. T. Rackliff.' The 'mediterraneas' are perfectly hardy with us in the east of Scotland, standing up without harm to temperatures of 18° to 12°F.—the lowest we normally get, but I have no knowledge of how hardy they may be in parts of America.

All the heaths I have mentioned have proved themselves satisfactory and easily-grown plants in cultivation with me. Our soil in general tends to be on the alkaline side—not an ideal soil for heaths—but generous incorporation of leaf-mould and peat has helped to neutralise this condition, and at the same time helps to conserve our often very scanty supply of rainfall. When I commenced to write these notes I fully intended to mention some of my favourite varieties of our 'Bell Heather'—*Erica cinerea,* our true Heather, and the Cornish Heath but I have allowed myself to enlarge on the winter flowering heaths to such an extent that I think I had better end here.

A COLLECTING TRIP INTO THE SIERRA NEVADA

F. O. PEARCE, *Orinda, California*

FOR MANY YEARS I have had what I consider a great privilege—that of making extensive pack trips into the high Sierra Nevada of California, a chain of mountains quite distinctive unto itself, and of botanical interest, having a number of very fine endemic alpines. I have never been certain whether my excursions into these wonderful areas have been due to an inborn love of the exhilarating wide and open spaces, combined with the incomparable scenery (I suspect that these are the principal factors); to the opportunity of taking photographs (the pictorial possibilities are superlative); or to the love of the flowers which grow so lushly in so many diversified localities.

This country, of which I write, known as the "High Country," begins just below timberline, which occurs at about eleven thousand feet at the southern end of the range, and at approximately nine thousand feet at the northern end, and ascends to the summits of the many peaks; the highest being Mt. Whitney, fourteen thousand four hundred ninety-six feet, at the southern end of the range. Below timberline are extensive forests, much open country, and lovely meadows—all with their interesting plant life. But for now, I am interested only in the "High Country."

The California Sierra Nevada is a comparatively young range, mostly granitic, very steep, and abounding, in all the high areas, with the evidence of glaciers recently gone. Glacial cirques surrounded by vertical cliffs, with deep blue tarns nestling at their feet, are common. Talus slopes consisting of huge granite boulders are among the obstacles along the trails, and below and between them the slopes consist of decomposed granite, forming a very coarse scree containing but little humus. Rills and brooklets from the melting snows combine to form creeks, lakes and meadows (which, after all, are only filled-up lake beds). This quick delineation of the characteristics of the High Country might give the impression that all is desolate, lonely, and hardly worth investigation; and this impression seems to be verified as one scans the tremendous views from the high peaks. However, upon close acquaintance, it develops that the brooklets are lined with and almost covered by, that the lakes are bordered by, and that the meadows are filled with, lush growth of many kinds: prostrate trees and shrubs, grasses, and beautiful annual and perennial flowering plants. All this abundance affords the botanist and alpine plant enthusiast plenty of opportunity for a great deal of rewarding contemplation and study.

Now let us suppose that for a few days we are camped along the shores of a lake, at an elevation of about ten thousand feet above sea level; and that we are going to do a little plant exploring and collecting today and tomorrow. Today we will walk leisurely around the lake, maybe with a fishing-rod in hand, but surely with a camera and a few polyethylene bags for collecting. On second thought, since we are plant exploring, we will leave the fishing-rod behind, since from experience, we know that we will do either one or the other, but certainly not both.

Our camp is near the inlet to the lake, and after having been lulled to a deep sleep last night by the song of the rushing creek, we arise early, and are completely,—and we mean completely,—awakened, by dousing our face in the near-freezing creek water, fresh from the snows not too far distant. After coffee and a breakfast of bacon and hotcakes and fresh trout, we shoulder our cameras and strike out. In order to cross the stream entering into the lake, we go up-

stream a little way and force our way through the willow thickets bordering it, almost stepping on mixed patches of *Mimulus implexus* and the Elephant's Head, *Pedicularis attollens,* a beautiful combination of yellow and pink. But these are not for us to sample, as the first is, generally speaking, an annual; and the other we have tried before, without success.

Up on a bench on the other side of the creek we come upon a small meadow, filled with many flowers: *Dodecatheon alpinum* and the dwarf bilberry, *Vaccinium caespitosum,* in the center of the meadow, ringed with the pink and white heathers, *Phyllodoce breweri* and *Cassiope mertensiana;* and bordering the stream, mingled with the willows, the ericaceous Labrador tea, *Ledum glandulosum.* Out comes the camera for some beautiful pictures, particularly of the cassiope with its delicate white bells hanging daintily from the green-clothed stems. Of all the small shrubs of the mountains, this lovely plant is a universal favorite. I have been fairly successful with it in my garden. I have a couple of plants in gallon cans, one of which is about two feet across and it has blossomed for me fairly well. I have another cassiope, planted in the shade rock garden, in pure peat moss; and while it is as yet but a small plant, it is healthy and growing. Another plant which I have in the same location is also found in the wet high meadows: the bog laurel, *Kalmia polifolia* var. *microphylla.* This one blossomed for me very nicely last year, but this year, at the present writing in July, no buds have yet appeared. I have had good, healthy plants in gallon cans for some years; they have bloomed only sparingly, but they have grown to a height of eighteen inches or so, whereas in their native bogs and streamside locations they seldom get over four or five inches high. So far, I have had no luck whatever with the pink heather, *Phyllodoce,* but not for want of trying. It is one of the really attractive plants of the Sierra, and is still on the agenda. The ledum I have found to be little difficult, perhaps because it seems subject to scale. It has blossomed for me, however, and was very lovely indeed.

But back to our hike: Proceeding along the trail, out of the meadow onto the open hillside, where we find many tumbled granite rocks formed into beautifully-fashioned natural rock gardens, we find, here and there, pentstemons of different varieties: here is a colony of *P. confertus;* there a clump of *P. bridgesii,* framed against a boulder at the side of the trail; and here and there, most plentiful and beautiful of all, *P. newberryi,* the pride-of-the-mountains. This plant I have seen growing in shade, rooted in the forest humus, at elevations lower than ours at present; and I have seen it in pure scree, at much higher levels, in full sun, being happy in both places. At the higher elevations, where it has full sunshine all day long and plenty of water from the snow run-off, the flowers are of a much more intense crimson color, almost too brilliant to look at closely. After several trials, I have a healthy growing plant in a gallon can, although it has as yet shown no tendency to bloom.

The trail now crosses a dry flat, which is covered solidly with the fuzzy blossoms of the pussy-paw, *Spraguea umbellata,* of a most lovely soft, pastel tan-pink shade, a wonderful alpine carpet. This plant I believe to be a annual, so I have never tried bringing it home. Around a bend in the trail, we descend a bit so that we are close to the lakeshore, where we encounter a boggy area through which flows a small stream. Here we find the pink monkey-flower, *Mimulus lewisii,* growing three to four feet high, with dark pink flowers, almost a red. And nearby, along the little stream, we see the little tiger lily, *Lilium parvum,* waving above the thick grass, on two-foot stems. Four or five years ago, I dug up some bulbs of this lily, and they have grown and multiplied in a pot. The petals are not fully recurved as in most other Tiger Lilies, and this fact, together with a brilliant orange color, makes it a most striking treasure.

At the outlet of the lake, we find a log jam, which makes the stream easy to cross; wending our way back to camp, we find, in country similar to that through which we have traveled, quantities of *Castilleja,* the Indian paintbrush, of varying bright and pastel colors, and of *Eriogonum umbellatum,* having blossoms of a bright sulphur-yellow, turning to orange, brick-red and brown with age. The eriogonum we have in our sunny rock-garden. It is easy to grow from seed and is quite happy and beautiful in flower.

We go to bed early this evening, for tomorrow we are going to climb a peak, about thirteen thousand five hundred feet high, and again we have a deep sleep, soothed by our creek's noisy lullaby.

We get an early start, so that the toughest climbing may be completed before the sun's rays in that thin air become too hard on us. As we start out we notice, in addition to the shrubs noted yesterday, the dwarfed trees of the timberline area: *Pinus albicaulis, Pinus murryanus, Juniperus occidentalis* and *Tsuga mertensiana,* all windblown and some lying almost prostrate. This condition is, of course, due to the fierce storms which occur at this altitude, and to the heavy snowpack, sometimes twenty to thirty feet deep.

Now, as we climb, we discover, at a little higher altitude, that finest of columbines, *Aquilegia pubescens,* in many of the crevices of the granite. The flowers are of a lovely pure yellow, with spurs long enough to do credit to any proud gardener. This plant I have never tried, but I hope to find good seed the next time I see it. Now we find veritable carpets of *Phlox douglasii,* with the blossoms completely hiding the foliage. The blossoms are mostly pure white, but we find many plants having light and darker shades of pink and lavendar. I have grown and flowered this plant in my garden, but lost it. I intend trying again, for it should not be too difficult, and it is definitely worth its trouble.

Most of the plants which we now see are at an altitude at which the sun is strong and hot, and the roots require cool runs behind sheltering rocks, which they find easily. Under such conditions we find *Oxyria digyna,* the mountain sorrel, a close relative of that blankety-blank sheep sorrel, the hardest weed to get rid of in my garden. The *Oxyria,* however, is far from being a pest, but a very colorful plant, with roundish leaves, tinged with red, and the typical sorrel flowers, on slender stems, repeat the color effect.

As we gain altitude, we now find two of the best of the Sierran alpines: *Epilobium obcordatum* and *Primula suffrutescens.* The first I have seen hiding demurely in crevices between rocks, and again in a broad swale of pure scree, the latter a colony thirty feet across and perhaps sixty to seventy feet long covered with the large four-petaled rose-purple flowers, a sight never to be forgotten. This plant I have found to be quite easy to transplant, and it is flowering now in my rock garden, in full sun in a hot climate with low humidity, but with water applied copiously daily. It is planted in scree several inches thick, underlaid with a decomposed sandstone soil, with rocks adjacent, so that the roots may run for a cool cover. *Primula suffrutescens* is another story. With one exception, to be discovered a little later, I believe this to be the finest plant of our High Sierra, and it is, I believe, indigenous to this area only. With thick, almost leather-like green leaves crowding the short stems, the plant spreads close to the ground; then the slender flower stems rise about four inches above, carrying lovely pink and rose primrose blossoms. I have read articles by English experts, who evidently grow this primrose as if it were nothing out of the ordinary. I should certainly like to know their secret, for my experiences are tantalizing. I have brought good plants home, and they have taken hold, grown almost luxuriantly, but without bloom,—and then—poof!—they are gone. I have two now, and I always have hope.

F. O. Pearce

A mat of Cassiope mertensia at home in the Sierra Nevada.

And now, as we near the summit of our mountain, we scan rocks and crevices for the finest of them all, for *Polemonium confertum* var. *eximium* grows only around thirteen thousand feet and above. Yes, there it is, in a little nook of scree, along the side of a boulder. We drop to our knees and cup the flower in our hands, the better to examine it with admiration. No other Sierran flower has the deep sky-blue color of the "sky pilot," and no climber, whether or no a flower nut, fails to pay due respect to this beauty. It is not a small plant, especially considering the condition under which it grows; the leafage is definitely polemonium in character, but quite coarse and sticky to the touch. The flowers, on their six to eight inch stems, occur in capitate heads about an inch and a half in diameter, with many of the lovely blue blossoms to the head. I have had no luck in transplanting, and I don't intend trying again. But I should like to find ripe seed some time in the hope that I might, in growing it that way, renew my friendship with a good friend.

From here to the summit we discover other beauties: *Phlox douglasii* var. *caespitosa,* very different from the species, and completely discovered with blossoms; *Draba lemmonii,* the color of its flowers verifying the accuracy of its name; *Pentstemon davidsonii,* small plants with large purplish-blue flowers; a tightly-cushioned species of *Eriogonum,* with yellow and brown small flowers covering the cushion, like brightly-colored pinheads; a tiny erigeron, and other composites, in which I have taken no great interest. At the summit, we are overwhelmed with the tremendous view, with peaks near and far, deep canyons, beautiful clouds and cloud shadows; we dutifully take a number of pictures, and, after a welcome lunch, turn our descending steps back to camp. We see again the flowers of the morning's climb, and find, in addition, not too far

above camp, occasional clumps of *Juniperus communis,* in berry. This juniper seems to have many variations, and as this one seems to be of a deeper bluish shade of green, we search for, and find, a piece which has been covered in humus and sprouted roots, and which we are certain will take hold when we get home.

And so back to camp. Each specimen we have collected has been immediately placed in a polyethylene bag (I like the English word much better: polythene), with some damp scree or earth, depending on the type of plant. Now we pack them carefully, so that they will not be harmed during the return trip home. We have collected plants only when there have been many plants of the species, so that one missing plant or so will not affect the natural gardens. Also we have not let our collector's enthusiasm run away with our (we hope) good sense: we have taken only plants which we are reasonably certain we have the ability to transplant successfully. We think it is poor policy to take a beautiful specimen, only to have it die because the proper care is beyond our knowledge.

(In this connection I think that an article by an experienced collector of this type of material, on the proper methods of bringing along these uprooted plants and their proper care and maintenance, would be a contribution of real worth. I hope the editor can persuade some expert to do so.)

One final caution to the collector: the whole of the Sierra Nevada is ideal for observation and study and for picture-taking, but, collector—please avoid the National Parks. These areas are set aside for complete conservation (except for the destruction caused by building of roads), and nothing is to be disturbed.

This little story is, of course, a composite account of many trips I have made into the High Country, which extends from the area of Mt. Whitney in the south to Lake Tahoe in the north, a distance of about two hundred miles as the crow flies. Essentially the same flowers occur throughout the length of the Sierra, although the altitudes will vary, becoming lower at the northern end. For one who knows where, most of these flowers may be seen without too much effort, as there are many areas within four to five miles of good roads, accessible by fairly easy trails, which have beautiful displays of the finest of the alpines. Usually the summer days are wonderful, sometimes clear and sunny; sometimes with beautiful cloud effects; occasionally, heavy afternoon thunder-showers; but generally speaking, trail travel is pure joy,—plus effort. And if you want to see the sky pilot, or others of the Highest Country, you have to make this effort, and I guarantee it will have its just reward.

SOME UNUSUAL PLANTS

BERNARD HARKNESS, *Rochester, N. Y.*

AGAIN IT MAY BE HELPFUL to say a word about some new contributions to the Seed Exchange.

In return for a very small favor of some American plants needed at the Botanic Garden, Oslo, Norway, Mr. Berg has sent over seed collected in Bovertun, Oppland Co., Norway last September. The amount of *Saxifraga Aizoon* exceeds three ounces so anyone with the faintest desire to grow the Norway race of this plant should receive a generous packet. I thought I was getting a good amount of *Saxifraga tricuspidata* seed on the south spur of the De Smet Range out of Jasper, Alberta, last July but I can only come close to the supply of the sparse seeding *S. oppositifolia* from Norway—the same plant I saw in flower near the Sunshine Skii Camp out of Banff.

Teucrium krymense Juz. came from Moscow as seed in 1956. It is a trailing plant, a good ground cover though somewhat intolerant of humidity—it does much better in a dry summer. Flowers are rosy-magenta on racemes up to three inches. Its name seems derived from Crimea, but it seems hardy enough here and is semi-evergreen.

That odorous (in flower) Mediterranean aroid, *Dracunculus vulgaris* can be grown outdoors where frost does not penetrate down to the bulb. The Gladiolus species from the same area are reliably hardy and several species are being grown here.

Ocimum canum is an annual similar to Basil but is pubescent. Seed was from Coimbra, Portugal.

Talinum patens is a tender bedder with glossy leaves.

A new border plant this year was *Lysimachia ephemerum*, a very neat plant with long racemes of white flowers in the summer months. The Phlomis are coarse-leaved plants with rather showy flowers, *P. Herba-venti* less so than most of the genus. There seems to be unexpected hardiness in the genus as evidenced by *P. maroccana* from Barcelona, Spain—presumably an African species.

SOME NOTES ON TUFA

BETTY JANE HAYWARD, *Scarborough, Maine.*

Where one enters the rock garden at its highest point, to the left of the central walk that starts the gradual descent, is an area in which pieces of tufa have been assembled to provide crevices for some of the plants that are lime-loving.

Here, a large colony of *Primula marginata* has grown contentedly for many years. The rosettes now cover more than a yard of the slope, and in spring the lovely flowers in shades of soft blue and lavender create a beautiful and effective group. Some other primulas of section Auricula grow well in the tufa.

The encrusted saxifrages are happy here too, and many have long since left the crevices to grow in the rock surface itself. *Saxifraga apiculata*, a Kabschia hybrid, grows better here than elsewhere, and complements the soft blue of *P. marginata* with its blossoms of pale yellow in spring. *Draba bruniaefolia* completes the trio.

The plants mentioned, and others, seem to like the small mountaintop. Until quite recently no attempt had been made to introduce small and difficult plants into holes in the soft surface, as is often mentioned in rock gardening articles by some of the experts. However, two years ago, after I had failed repeatedly to grow and keep *Petrocallis pyrenaica*, tiny plants were established in holes in the tufa, and began to grow and lengthen, until at present the little colony flows down the slope for about ten inches. Last spring the tiny deep green wedge-shaped leaves were hidden by the sweet vanilla-scented blossoms.

Nearby, *Omphalodes luciliae* lodges in its own rock. This lovely plant, tried and lost more than once, has at last settled down to grow and blossom. Perhaps some of its seeds will fall in the fertile rock. One languishing remnant of *Phyteuma comosum* is at present in the sand frame; if it survives the winter perhaps we can report a happy ending some day, in the tufa mountaintop.

* * *

Ah, for what price has Crocus vernus sold its birthright, and from the frail and delicate grace of its fluted chalices, developed into bumpers like the coarsest claret-glasses of a public-house. —Farrer.

A COLLECTOR'S GARDEN

MRS. GRACE E. BUTCHER, *Lewistown, Maine.*

A BULDOZER took the garden without warning, plants, seedlings, rocks and soil. A clean sweep!

Should there be another one?

The offer of a bit of land at the home of a friend made the answer "yes". But this time it would be a collector's garden where the number of plants of each species would be restricted.

The spot was a slope along the brick foundation of the house ell and the shingle foundation of the sleeping porch, much of it covered with a thick growth of spiraea bushes ending at a large pile of well leached soft coal cinders. Along the edge was a sloping footpath, on the other side of which grew cedar, hemlock and white spruce trees, with a very tall elm towering over all. Beyond the white spruce were young chokecherry trees, planted by birds, and raspberry bushes, all purposely left to encourage bird life. Beyond the footpath at the bottom of the cinder pile grew a fine white English hawthorn.

Conditions were not ideal for a rock garden. There was no room for a background planting, there were tree roots to absorb moisture and nutriment, and worst of all there was drip from the very tall elm tree.

Even so, the hunt for rocks began over territory for miles around, already covered twice for former gardens. They had to be of a size that I could lift in and out of the car and move thirty feet. The largest one was three feet long, eighteen inches wide and eight inches thick.

Eventually a section twenty-five feet long, nine feet wide at the upper end and seven at the lower, was constructed next to the foundation. Across the path from the top of this, the space among the trees became a woods garden.

Below this the second section of the rock garden took roughly the form of a triangle fourteen feet long, with a rounded end three feet wide which extended out six feet to end in a ledge effect.

At the present time the garden has more than three hundred fifty varieties of rock and alpine plants, some tiny, all low-growing and non-invasive.

In developing the garden, an effort was made to keep it in harmony with the woodsy area around it. Many of the spiraea bushes were taken out, rocks were placed, and the planting was begun with *Deinanthe bifida, Primula denticulata alba* and *rubra,* ferns, single and double bloodroot, three species of trilliums, *Coptis groenlandica* and *C. asplenifolia, Mitella breweri* and *M. nuda, Hepatica triloba,* four varieties of *Fritillaria meleagris* in white, pink, purple and brown, *Puschkinia scilloides* and *Bulbocodium vernum,* extending from the bushes out to and among the first rocks.

At present, after the fritillaries and other bulbs die down, *Primula sieboldii* takes over, with *Bruckenthalia spiculifolia* and *Corema conradi* below. Nearby is an attractive planting of *Orphanidesia gaultherioides* surrounded by *Epigaea repens.*

The highest rocks, presided over by two fine specimens of Braun's holly fern, are set into an acid soil mixture containing considerable sand. Here such things as the arctic bearberry, *Arctostaphylos alpina,* alpine rattlesnake root, *Prenanthes boottii, Geum peckii* and *Vaccinium uliginosum,* all from Mt. Washington, grow happily together with *Hypoxis hirsuta, Saxifraga virginiensis,* maidenhair spleenwort, *Asplenium trichomanes,* and several encrusted saxifrages, some of them from Vermont.

Mrs. Grace E. Butcher
The alpine garden, planted with natives of the New England peaks.

Along in August, a willow gentian that used to be only twelve inches tall now attains a height of three feet, with at least six stems. This arches over the highest section and in September is filled with bloom almost its entire length. *Gentiana andrewsii* grows nearby to keep it company, while smaller gentians such as *G. verna* and *G.* x *hexa-farreri* are in the lower part of the garden.

Below this area *Shortia galacifolia* and *S. uniflora grandiflora, Schizocodon soldanelloides, Saxifraga oppositifolia* and *S. retusa* grow along with *Primula mistassinica, farinosa, frondosa, clarkei, rosea ruba, kisoana,* 'Snow White' and *sibthorpii.*

Several ferns which form a nice setting for this collection include the Japanese *Athyrium goringianum pictum, Cryptogramma stelleri, Chrysopteris bulbifera, C. fragilis,* and *Woodsia scopulina* from the Gaspe peninsula. *Asplenium viride, Woodsia ilvensis* and *Camptosorus rhizophyllus* are in other parts of the garden which are more to their liking.

A few years ago, spores from a few plants of lady fern *(Athyrium felix-femina)* blew over the garden and germinated. Some were allowed to grow until they became so large that removal was necessary. When moving those growing near *A. gorginianum pictum,* two fine hybrids were found which had definite white markings similar to those of the Japanese variety. After three years these are larger than that parent, but not as large as the lady fern. However, like the latter they start growth earlier in the spring.

Further down, built on top of the cinder pile, is the tiny but choice alpine garden, which is most intriguing. It is a replica of an alpine lawn or tableland as seen on Mt. Washington and the Presidential Range in New Hampshire and Mt. Katahdin in Maine. On it are grown plants collected from the arctic zones of these areas. They include *Diapensia lapponica, Loiseleuria procumbens, Rhododendron lapponicum, Silene acaulis* var. *exscapa, Lycopodium selago, Solidago cutleri,* three varieties of Arctic willows—*Salix uva-ursi, S. herbacea,* and *S.*

peasei, the hybrid of the first two, which was long thought to be found only on the Presidential Range but has since been found in the Hudson Bay region —and *Arenaria groenlandica,* which seems to be a biennial here. The alpine brook saxifrage, *S. rivularis,* is happy enough here to self-sow.

The mountain cranberry, *Vaccinium vitis-idaea,* grows on both the top and the sloping sides. Its shiny dark green foliage and waxy pink bells followed by showy red berries make it a valuable rock garden plant. Its taller variety is grown separately in the triangular section.

The little hairlike arctic sedge, *Carex capillaris,* which I have heard called deer hair, forms dense tussocks and is allowed to seed here until plants become too large, because they are part of the mountain flora and I hesitate to eliminate them entirely. *Carex bigelowii* is so invasive that it should be carefully removed from collected plants. It has such determination to spread that it will grow right up through a cushion of *Diapensia lapponica.*

Just below the rocks at the edge of the alpine garden is an interesting group (including a few foreigners) consisting of the holly-leaved *Schizocodon soldanelloides ilicifolia* from Japan and the difficult *Cassiope hypnoides* from Mt. Katahdin, *Phyllodoce caerulea, Cassiope mertensiana,* and a large mat of *Cassiope lycopodioides.*

Andromeda glaucophylla and *A. polifolia,* with *Vaccinium uliginosum* var. *alpinum, Empetrum nigrum* and *Potentilla tridentata* grow nearby to round out the collection. *Prenanthes trifoliata* var. *nana,* which is about five inches tall on Mt. Washington and Mt. Katahdin, grew five feet tall here and was rather showy, compared to its usual appearance in its natural habitat, which is from Newfoundland and Labrador to eastern Maine and the high mountains of New England and New York.

In the triangular section a small galvanized iron tub filled with gravel was sunk toward the ledge end so that the top of the tub was a foot below the level of the surface. This space was filled with pure peat which acts as a wick to draw moisture to the surface after a rain or hosing has filled the tub with water. When the tub runs over moisture is spread out to the surrounding soil and to plants on the ledge. This section provides nice little crevices for such things as *Androsace carnea* var. *brigantiaca, A. albana, A. villosa, Saxifraga umbrosa primuloides, Lewisia brachycalyx,* and tiny sedums like *S. hayesii,* 'Wright's hybrid', *S. pilosum,* and the larger *S. spathulifolium purpureum* which is so lovely in its crevice when the garden is uncovered in the spring.

Leading to the ledge area, plantings are mostly of ericaceous shrubs, *Hudsonia ericoides, Leiophyllum buxifolium, Calluna vulgaris rosea,* 'Mrs. R. H. Gray', and 'J. H. Hamilton', *Erica carnea alba* and *sherwoodii,* the carmine blooms of which blend so well with those of *Primula denticulata ruba,* which extends up near it from the back of the ledge. Among these, in the peat above the tub, *Anemone vernalis* is especially happy. Extending from this planting down to the edge of the ledge are a blueberry bush, *Corema conradi, Globularia cordifolia* and *G. bellidifolia.*

On the ledge itself, *Douglasia vitaliana* is very happy in a crevice at the edge, probably getting a little moisture underground from the overflowing of the tub. Encrusted saxifrages, androsaces, *Petrocallis pyrenaica, Thlaspi rotundifolium, Thalictrum kiusianum, Aquilegia scopulorum, Penstemon newberryi, P. rupicola roseus* and *Sedum roseum* are among many things on the ledge. Every year *Oxalis adenophylla* comes up in two places to add to the ledge collection.

Primula auricula and more than thirty other kinds are placed singly or in small groups in interesting places throughout the garden.

The highest rocks, after plants have gone dormant in fall.

In the woods garden *Trillium erectum* is the first thing to appear in spring, followed by *Hepatica acutiloba* from Minnesota and Vermont. (Only *Hepatica triloba* is found in this area.) Then come Jack-in-the-pulpit, *Fritillaria meleagris, Trillium cernuum* and *T. grandiflorum,* maidenhair ferns, *Viola pubescens* and other native species, galax, cortusa, and *Cypripedium acaule, pubescens and reginae,* with oak ferns extending to the triangular section.

At the edge of the woods garden, to hold the soil from washing into the path, is an eighteen inch strip of moss garden which consists of various kinds and shades of collected mosses and lichens. Where drip from the elm kills out plants, moss takes their place. All mosses and lichens which were on the rocks when they were collected were carefully preserved and have continued to grow. Thus there is a considerable variety of these in the garden, including the interesting reindeer moss, *Claydonia alpestris,* and an experimental bit of the rare luminous moss, *Shistostega osmandacea.*

To a collector the garden is a success, for most plants are happy there and many are a reminder of the beauty of their native habitat. Although a through city traffic artery is only 250 feet away, when one slips under the lowest branch of the hemlock, it is like entering a quiet woodland where the only sounds are the calls and songs of birds.

* * *

It seems advisable to give the seeds of Rocky Mountain plants, sent by your editor to the Seed Exchange, an extended period of cold treatment, perhaps more than that required by seeds from other regions. Those collected in 1958, sown in jars in late November and left in the basement of an unheated house throughout the winter, germinated profusely in April while the peat-sand mixture in which they had been sown was still frozen solid.

HOT AND DRY

MRS. PETER H. GOURLEY, *Oakland, Oregon.*

THE SUMMER OF 1958 was a very dry one in the Northwest, and consequently a good time to note the toughness of plants, alpine and others.

I don't believe the rainfall for the whole year was below average, here in southern Oregon, but it was very warm (over 90°) for weeks on end, and was made worse by a drying east wind, which is the combination that wilts plant and man.

Water is always a scarce commodity in my garden, so I had planted with drought resistance as a major requirement, in all areas except terraces and annual beds, where water is near at hand. There is always more or less drought here from May to mid-September, so that natives from California, Oregon and Washington are generally satisfactory, but are often summer dormant.

Needless to say, when water runs short, the death and stunting of many plants always causes great disappointment, and last summer was no exception. All the annuals suffered much, with the exception of a long row of petunias which were absolutely spectacular. Each plant grew better than two feet high and wide, smothered with flowers until heavy rains in October—this without water. The only other annual which did equally well was *Nierembergia* 'Purple Robe', which is very good with alpines.

But enough about annuals. In spite of the weather there were many colorful spots throughout the summer. One happy surprise was the lavish blooming of a plant of *Gentiana "acaulis"*, which is five years old and has been moved three times. It never bloomed at all in its first home in rich river loam, and thereafter, while it was moved from place to place, had about one brilliant blue trumpet a year. This spring it had one flower very early, in February, I believe, and another in the spring, but outdid itself with six huge blooms right in the heat of August, and two more in the fall. Right now, in December, it is expanding another bud and is forming more. The plant itself is little more than four inches across, although it is increasing rapidly in size now and I have taken off several offsets. Since what makes it bloom or sulk is a mystery, I shall try to describe its site. The soil is very poor, a sort of red clay made of partly decomposed shale. I added no fertilizer, nor, since the plant is supposed to like firm planting, any leafmold or compost. It is on a level terrace and gets plenty of water. Sorrel is a pest around it, so I suppose that the soil is acid.

"Hot and dry", said the directions for *Scutellaria baicalensis,* and *S. japonica* or *indica,* but mine died in such environment, and I had only a few left when I moved them to a light enriched soil where they got at least some water. *S. baicalensis* has little tubers for roots and grows six inches to a foot tall, blooming for a very long time in late spring and early summer. The flowers are a good blue and plentiful. *S. indica* (name under question) had barely managed to stay alive during the three years I had it before I moved it to a damper spot where violas do well. Last fall, in chrysanthemum season, it burst forth in a cloud of lavender blue helmets thickly packed on short stems just above very neat gray-green foliage. I don't know how long it would have kept up this display if my granddaughter had not decapitated it in November. It seems doubtful that late fall is its normal blooming season.

Another gem of the same family is *Stachys corsica.* I was unable to keep this one alive in a hot dry place, but it has increased nicely in damp loose soil. It is tiny, less than an inch high with tiny bright green leaves and labiate flowers designated as white or cream, but with pink or lavender shading according to

the weather. It is a really lovely thing. *Scutellaria baicalensis* seems the most tolerant of dryness of these three labiates, and it can take very dry weather if the soil is of the right texture.

Of course, *Convolvulus mauritanicus* bloomed all summer; a good soaking every few weeks helped it keep up a heavy floral display. The flowers of *Ruellia ciliosa* are much the same in color, a little paler and bluer perhaps, but the plant is much more upright. It too blooms on and on, but drops its corollas if weather is unfavorable, or if sprinkling is done from overhead. Similar in cultural needs to these two lavender blue flowered plants are the various forms of *Mimulas (Diplacus) longiflorus,* an upright bush, and the trailing *Malvastrum coccineum.* I had flowers on the bush monkeyflower from cuttings I rooted this spring. I planted *Salvia farinacea* among the mimulus.

Apart from the salmon-apricot and brick colors of the mimulus and malvastrum, a lovely ever-blooming combination can be planned with the morning glory, ruellia, and pink *Oenothera speciosa.* This evening primrose is fragrant and lovely. It is light pink, about a foot high, but spreading. I have had the white form too, and also *O. mexicana rosea.* I thought they looked a lot alike, but the last does not darken to rose as it withers, and mine does not seem to be fragrant. The foliage is similar, but *O. speciosa* is shorter and neater. All the oenotheras seem to bloom a long time and to enjoy heat and drainage.

Cerastostigma plumbaginoides did exceptionally well, for it does not mind long dry periods at all, and its bright blue flowers come in late summer.

I have been much intrigued by some new low goldenrods I am trying. I brought some down from the mountains and purchased *Solidago mollis* and *S. glaberrima.* They are very nice so far, blooming after the fall asters, with scarlet zauschneria. I cannot be sure that they will not spread too fast or get too tall until I have tested them further. Scarlet *Verbena* 'Flame' bloomed all summer before the California fuchsia started, and all over the bank are airy stems of penstemons of the *P. heterophyllus* group—now bright blue, now lavender, now almost pink. They have a rather diffuse quality, giving the same airy effect among other plants that coralbells do. The plants themselves are decorative, with glaucous leaves and a red tinge in the stems. They have developed into very satisfactory plants by fall, and look permanent, although one cannot always be sure about penstemons. *P. heterophyllus* is supposedly short-lived.

Now to mention a few plants that were not equal in performance to that of last year. The dianthus, campanulas and aubrietas were all cut short by extreme heat at critical times. *Dianthus* 'Rose Bowl' is my favorite because it makes the showiest display in summer. It is a hybrid and double, but I like hybrids as well as species. I would not be surprised if a lot of species were not hybrids themselves in the remote past. Hypericums, usually so colorful in the summer, had a tough time because of the introduction of the hypericum bug. These metallic blue and green beetles kill all cultivated hypericums as well as the poisonous "Klamath weed" which they are supposed to destroy. I have saved my hypericums so far, but they can hardly bloom because of the hordes of insects which move in on them.

I have not mentioned the host of spring blooming plants, phlox, helianthemums, cistus, penstemons, daphnes, veronicas, arenarias, aethionemas, and many others which always do well as the bloom before the weather becomes too hot and while there is still plenty of moisture.

* * * *

I do not even know my own garden yet; it is always a nest of surprises.
—Farrer.

HELLEBORE NOTES

S. A. McCLANAHAN, *Seattle, Wash.*

ONE WONDERS WHY there is so little published information about the hellebores. They are among the oldest of plants and legend is permeated with references to them. Their outstanding point of interest is their habit of "turning the seasons around" and blooming in the winter. Color and fragrance of the flower are almost lacking, so that one would not cultivate them for these features.

Helleborus niger is favored for ground covers and rockery niches. Each of the other hellebores may have its own attribute of interest, beauty, or flower arrangement. However, when many of the other species are grown together they tend to hybridize and produce numerous weedy, useless seedlings. *H. niger* does not normally hybridize with other species, and its few self-sown seedlings are anything but weedy.

H. niger is the true "Christmas rose" of legend. In some garden circles, all the common hellebores (*H. orientalis, H. foetidus, H. corsicus* and hybrids) are called, incorrectly, Christmas roses.

There are numerous forms of *H. niger,* some of which have been named. They cross-pollinate easily. Controlled pollination produces interesting variations as well as vigorous plants. Scores of these in their different forms and blooming periods may be seen as ground covers and rock niche residents in the writer's garden.

They have been found to be particularly valuable as a ground cover in mass plantings of deciduous azaleas. Starting with an original "soil" of almost pure sand, the azaleas grow in a shallow mixture of acid peat with the sand. The Christmas rose plantings are intermingled with the azaleas in pockets of sandy non-acid compost. These pockets are approximately the volume and shape of a fourteen inch cube. Suitable acidity conditions are maintained by applying acid-reacting material on *top* of the soil around the azaleas and by injecting base-reacting material (bone meal and lime) *deeper* in the soil near the hellebores.

Daffodils and lilies are also used in this planting. The effect, in this climate, is generally good the year around. Beginning in December, the array of white "roses" is accented by the bare branches of the azaleas; in early spring the daffodils take over; later spring brings another array of orange-red azalea blooms; and the lilies and brilliant autumn foliage of the azaleas finish out the year. The ground cover provides the strength for this planting at all seasons. Weeding and watering problems are minor.

This particular planting slopes gently to the east and is in nearly full sun. Buildings and distant trees cast their shadows over it after about 4 P.M. during the warmer months. Thus ideal conditions are provided for the Christmas roses. The azalea foliage furnishes filtered shade throughout the summer. The seasonal disappearance of this foliage gives the "roses" the full daylight and sun in which they delight during the winter. There are no coarse invading roots competing with or touching the black roots of the hellebores. The sand composition provides perfect drainage. No excess watering is necessary, so the desired late summer dry rest is attained for all.

In other *H. niger* plantings, similar principles are applied. The rockery niches are filled deeply with non-acid sandy compost, some degree of summer shade is provided, invading roots are shut out and, of course, perfect drainage is arranged for.

In most literature on this subject, emphasis is placed on the shade needs

of *H. niger*. Shade, of course, is always a matter of comparative degree and shade needs vary with the climate involved. In this vicinity, Christmas roses are not successful at the north side of a building or under dense tree foliage. They require more open situations with some sun. It is better for the plant location to be too sunny rather than too shady. Poor results will also be obtained if shallow foreign roots are permitted to compete. Such competition will come from (among others) a nearby davidia tree or *shallow-rooted* maples, viburnums, cotoneasters or dogwoods.

Raising plants from seed of *H. niger* is not easy. The seed should be planted immediately upon harvesting. If this is done, the seedlings will appear the following spring and summer. Dried seed may not germinate at all and in any case will lie dormant a year or two before germination. Plants should begin blooming the second or third year, if well grown. Best results will come from transplanting the seedlings while still tiny to their permanent acid-free location.

The acquisition of mature plants is recommended for the beginner in *H. niger* culture. These plants are very hardy and do not give up easily if given a reasonable opportunity to survive. They are not in any case house plants, and do not require babying except during their blooming season. At this time, an overhead plastic cover will protect the blossoms from excessive rain and splashed dirt. This is not necessary, however, so far as the health of the total plant is concerned, but it does provide more and better blooms for corsage or flower arrangement use.

In this Puget Sound region, *H. niger* plants may be moved (in a clump—not bare-rooted) at any time of year without loss of the plant. One or two years' bloom may be lost and some other forms of sulking may result if the move is not to the liking of the plant.

If a large number of plants of a particular form is desired, the following plan may be used. Select a reasonably large clump, six inches or more in diameter. Remove all the top growth late in the fall and cover the plant with two to three inches of non-acid, loose, well-rotted leaf mold. As the new growth comes up through this dressing, each crown bud will form its own small root system. When the new top growth is partially developed (about the following April or May) take up the plant and thoroughly wash away all soil. Then carefully break out each crown bud with its accompanying roots and transplant immediately. (The original large, deeper root mass is of no further use.) Well matured blooming plants should result from each of these divisions within three or four years.

Be careful to spread the roots when planting the bare root divisions. Observation will show that the roots which touch each other in the soil will turn very black and stop growing. They do not die or disintegrate, but new roots must be formed before the plant will thrive.

Single flower Christmas rose corsages are much in demand by the ladies during the Christmas season. The following method of preparing the flower, without water, so that it will withstand the hot indoor air, may be used. Remove the flower from the plant, with the exact length of stem required. Then dip about one-eighth inch of the stem end in asphalt emulsion, the kind that is used for painting tree injuries. Immediately hang the flowers through a large mesh screen and place them in a cool highly humid situation till used. Use no water.

Mr. E. B. Anderson's paper published in the July, 1957, issue of the *Journal of the Royal Horticultural Society* will be found very informative to those who wish to acquire a collection of the various species of Helleborus and their hybrids.

ON EASTERN CLIFFS – II

JAMES E. MITCHELL, *Barre, Vermont.*

MT. ALBERT IN THE SHICKSHOCK MOUNTAINS

Mt. Albert, the second highest mountain on the Gaspé Peninsula (3775 ft.) lies directly west of the center of Tabletop Mountain, with the Ste. Anne River between them. It is, in many ways, a remarkable mountain. Its rock is a soft serpentine, essentially a hydrated magnesia silicate, the magnesia being in sufficient quantity to be death to hundreds of varieties of plants. Like Tabletop, it is a great high tableland covered mostly with gray lichens and mosses. It is agreed by everyone who has visited Mt. Albert that the drear, dead appearance is its most outstanding characteristic. Yet in spite of its lifeless appearance, it supports on its seemingly naked slopes, in its moist hollows, in its many crevices, and among its decomposing boulders, a most unique vascular flora of probably more than one hundred species. Of these, at least forty species have never been found south of the St. Lawrence River.

I spent two days on its north edge, going up on the top for a short time each day, and then put in a third day among the wild crags of Devil's Gulch on the east side, also reaching the top on its eastern end. Our trail for three days had been along the base of the mountain parallel with its north side, generally about half a mile from the cliffs. Along this steep escarpment are a dozen little wild brooks fed by the snowbanks on the sides, and in many of the damp places near these brooks is a really luxuriant vegetation, but between them everything looks dead. Evergreen trees (they were trees lower down), such as black and white spruce, also balsam fir, growing on the sides and also on top, were stunted and withered, and in contrast with those at an even greater altitude on Tabletop, showed plainly the deleterious effect of the excessive magnesia. The rock looks very much like that in Hazen's Notch in Vermont, but it is certain that the Hazen's Notch rock does not contain any such percentage of magnesia as does the rock on Albert.

I think the most outstanding botanical item here is the immense area covered by that rare fern, *Adiantum pedatum* var. *aleuticum*. Acres, perhaps hundreds of acres, of this fern grow on the tableland, and I found some on the north edge, but it is on the top that it grows in masses. I saw none of it on Tabletop, and am quite unable to tell how far it extends in a westerly direction on Mt. Albert. Indeed, I am unable to say how far in that direction the broad tableland of Mt. Albert extends. I touched the top at the north and east edges only, and it is a large mountain.

There are other rare ferns here. *Cystopteris montana,* a very dwarf relative of our bulblet bladder fern, but not found in any of our eastern states, grows here in the tight crevices of the rocks beside the brooks that fairly leap down the north edge, and also grows among the rocks on the flat mountain-top.

On the walls of Devil's Gulch I found a Pacific Coast relative of our Christmas fern, namely *Polystichum mohrioides* var. *scopulinum*, with very rigid broad, but short, evergreen fronds. Known from only eleven other stations in California and the Rocky Mountains, this truly rare fern is worth trying to grow in our rock gardens. Another rare fern found on the dry walls of Devil's Gulch is *Pellaea densa,* a little four to six inch fern almost as rare as any of the above. It has wiry little triangular fronds and is, of course, a true alpine.

Along the north side and on top were most of the alpines of granitic moun-

tains: *Empetrum nigrum,* loiseleuria, all the White Mountain vacciniums, cassiope, phyllodoce and *Rhododendron lapponicum,* but they all had an unhealthy and stunted appearance. However, as pointed out by Professor Fernald, the rarest of the plants— that is, the plants found in the east only here— nearly all looked healthy and rugged, showing that through the centuries the plants had adapted themselves to this magnesia soil. It is a place of cultural contradictions from a botanical standpoint.

Growing along crevices in the rocks and on the detritus of the serpentine were thousands of dense cushions of a very pretty plant, *Armeria labradorica,* with lilac-colored hemispherical heads, often an inch across, on two to ten inch stems. Most armerias are easy in the garden and this should make a good rock garden plant. At this late date only a few blooms could be found, but there were thousands of seedpods.

One of the notable things of the whole Shickshock Range is the large number of willow species, and at least half a dozen of them might well be brought into cultivation. One of these, *Salix fuscescens,* is an attractive little creeper and should be a fine rock garden shrub. Another beautiful little willow has soft, silky white foliage, and has been variously called *S. desertorum* and *S. brachycarpa.* It grows from one to two feet high and was plentiful on Albert's tableland. The willows are a difficult genus and I have not tried to identify half the species I have seen on the Peninsula.

There are probably a half dozen species of arenaria on Mt. Albert. One of these, *A. marescens,* I readily identified from Fernald's description. First found on Mt. Albert, it was later discovered on serpentine rocks in Newfoundland. The specific name *marescens* refers to the leaves: marescent leaves are those that die in the fall, with the withered leaves remaining on the stems. Knowing this, I had no difficulty in distinguishing the plant at once. It forms close little tufts with small persistent branches. The leaves are narrow, bright green, and of a leathery texture. The blooms, at least three-quarters of an inch across, are both white and bluish tinted with a yellow center, and the total height is not over six inches. This should be a valuable rock garden plant.

Along the north escarpment, especially in the brook ravines, I found several species of draba which I was unable to identify. In fact, I believe that the drabas of Gaspé have not been very thoroughly worked out by the systematic botanists.

Among the good alpines of Mt. Albert is a creeping goldenrod, *Solidago decumbens.* Here, too, I found *Viola palustris,* a small light mauve colored violet with creeping stems. There are not many violets in Gaspé, but this one is apt to be confused with another mauve colored species, *V. selkirkii,* although they are readily distinguished by the creeping stolons of *V. palustris,* which are absent from *V. selkirkii.* On the north edge I found several stations of *Anemone parviflora* with the seed heads still retained, and near one snowbank I found a few blooms about an inch across, pure white until examined closely, when the base of each petal proved to be light blue. This looked like a very good plant for the rock garden, but to date I have not been very successful in moving the wild plants.

Among the other plants which have been found on Mt. Albert, either on the tableland or on its steep sides, are *Arabis alpina, Arnica mollis, Rubus arcticus, Parnassia parviflora, Ranunculus allenii, R. pygmaeus, Statice sibirica, S. labradorica, Achillea borealis, Aster foliaceus,* and numerous others, many of which would doubtless do well in our rock gardens. It is a vast area which has great possibilities, and probably not over twenty-five percent of it has been explored by botanists.

ROCK PLANTS THAT BLOOM IN SUMMER

A TABLE OF SUMMER-BLOOMING rock plants, compiled by the secretary of the Society, with a few additions by the president and editor. It is by no means complete, and dates of bloom will vary from season to season; two of the gardens are near New York City, the third in central New York, where the season is about two weeks later.

NAME	EXPOSURE		FLOWERING PERIOD							
			June		July		August		September	
	Mottled shade	Sun	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half
Adenophora nikoensis macrocalyx		X					X			
Asclepias tuberosa		X			X	X				
Astilbe sinensis pumila	X	X				X	X			
A. simplicifolia	X	X					X	X		
Azalea balsaminaeflora		X		X	X					
A. macrantha		X		X						
Begonia evansiana	X								X	X
Berberis candidula		X				X	X	X	X	X
Chrysogonum virginianum	X		X	X	X	X	X	X	X	X
Corydalis lutea	X	X	X	X	X	X	X	X	X	X
Cuthbertia graminea	X	X			X	X	X	X		
Cymbalaria pilosa	X	X	X	X	X	X	X	X	X	X
Dianthus superbus (1)	X	X	X	X	X	X	X	X	X	X
Dicentra eximea alba		X	X	X	X	X	X	X	X	X
Dimorphotheca barbarea compacta		X						X		
Gaultheria procumbens (2)	X								X	X
Gentiana autumnalis		X							X	X
G. makinoi macrocalyx		X					X	X		
G. septemfida	X	X				X	X	X		
Goodyeara pubescens	X				X	X				
Habenaria radiata	X							X		
Hypericum fragile		X			X	X	X	X		
H. yakusimense		X			X	X	X			
Hypoxis hirsuta	X	X	X	X	X	X	X	X	X	X
Kirengesholma palmata (3)	X							X	X	
Liatris graminifolia		X							X	X
Lithospermum diffusum 'Heavenly Blue'		X		X	X	X	X	X	X	X
Lobelia cardinalis	X	X					X	X		
L. siphilitica	X	X					X	X		
Meehania cordata	X			X	X					

NAME	EXPOSURE		FLOWERING PERIOD							
			June		July		August		September	
	Mottled shade	Sun	1st half	2nd half	1st half	2nd half	1st half	2nd half	1st half	2nd half
Platycodon dwarf alpine (4)	X	X			X	X	X	X	X	X
Potentilla fruticosa veitchii		X			X	X				
P. f. mandschurica		X		X	X	X	X	X	X	X
Rhexia virginica	X						X	X		
Roses (miniature)		X	X	X	X	X	X	X	X	X
Scilla autumnalis		X						X	X	
S. sinensis (5)	X	X						X	X	
Serratula shawii		X							X	X
Silene alpestris fl. pl.		X		X	X					
S. schafta		X						X	X	X
Solidago brachystachys		X						X	X	
Spirea bullata (7)		X		X	X	X	X	X	X	X
Tiarella cordifolia collina	X		X	X						
Tricyrtis hirta	X								X	X
Vaccinium vitis-idaea minus (2)		X					X	X	X	
Verbena bipinnatifida		X					X	X	X	X
Viola canadensis	X		X	X	X	X	X	X	X	X
Viola pedata (8)		X							X	X
V. p. linearilobа (8)		X							X	X

NOTES

(1). By removing dead flowers from the early flowering period, it will flower throughout the summer.
(2). Display of red berries at this time.
(3). Has a tendency to lose flowers before they open completely.
(4). White and blue. Has a longer flowering period if given afternoon shade. Upright and stiff in sun, creeping in shade.
(5). Reseeds freely.
(6). Would not flower when tried in shade.
(7). Receives a severe trimming in late fall.
(8). Principal flowering period is middle of May, sparsely during June, July and August, and abundantly in September, at which time it sets seed freely.

BOOK REVIEWS

Succulent Plants. By A. Bertrand; English text edited by Vera Higgins. 120 pages, 24 color and 40 black and white photographs. New York: Philosophical Library Inc. Revised edition, 1959. $6.00.

The fantastic forms, the usually brilliant flowers, and the ability to withstand periods of neglect make the succulents a group of plants in which interest is constantly growing. It is to be regretted that, appropriate as many of them would be in a rock garden, only in a hot desert one could most survive for more than a few weeks.

M. Bertrand's book deals first with the plants in their natural environment, then with their needs in cultivation, and with methods of propagation. Their requirements, as laid down by the author, seem almost too exacting, and doubtless some species will flourish without such meticulous care. Yet when one recalls how stapelias and lithops, apparently in the best of condition, suddenly collapse of rot, it may well be that one should heed the advice given here.

The major portion of the book is devoted to brief descriptions of some hundreds of the more representative and horticulturally desirable species. The language is semi-technical, and at times does not convey a picture of the plant to one unfamiliar with it, largely because of the strange appearance of many species. The geographic origin of many kinds is not mentioned.

The illustrations go far to compensate for the inability of words to portray these fantastic creations. Both color and black and white photographs have been reproduced with the greatest clarity of minute detail imaginable. I know of no other book dealing with plants in which the illustrations are so uniformly superb. Merely to glance through them is enough to arouse interest in the succulents. While the price of the book may seem high, it is more than compensated by the brilliant photography, while the text, as translated by Vera Higgins, is smooth and enjoyable.

Handbook on Gardening. Edited by Victor H. Ries and Paul F. Frese. 96 pages. New York: Brooklyn Botanic Garden, 1959. $1.00.

The most recent of the Handbook series is a compendium of the information most needed by beginning gardeners (and experienced ones also). Forty-two different topics are discussed, covering almost every conceivable subject on which the gardener may wish concise information except rock gardening—on which there is an excellent Handbook available.

Guides to the selection and use of annuals, bulbs, perennials, fruit for the home garden, evergreens, deciduous trees and shrubs, soil, propagation, tools, pruning, making and maintaining lawns, home landscape design: these are only a few of the topics covered in the brief yet comprehensive manner characteristic of the Handbooks. The profuse illustrations are both handsome and informative. The editors are to be congratulated on adding another attractive and extremely useful number to this important series.

IXIOLIRIONS IN OUR ROCK GARDENS

PETER P. KRIEGER, *Princeton, Iowa.*

MOST OF THE choice bulbs of the Amaryllis family are only half-hardy and should be treated as tender bulbs, that is, they should be planted early in the spring and taken up in the fall to be stored through the winter months in a cool, dry frost free place.

Ixiolirion montanum and *I. ledebouri* are exceptions, for they are perfectly winter-hardy with us. These lovely plants are natives of the Altai Mountains, between Siberia and Mongolia. Although known and extensively planted by British gardeners for over a hundred years, they are still seldom seen in our gardens nor are they often listed in the catalogs of the American trade. *I. montanum* opens its deep violet blue tubular flower in June, while *I. ledebouri* with light porcelain blue flowers is somewhat earlier, usually beginning to bloom about the middle of May. Both are excellent rock garden subjects and their flowers on twelve- to sixteen-inch stems are unsurpassable as cut flowers and as material for arrangements. These plants are of special interest and value in any

collection of small bulbs, because blue is such an unusual color in the Amaryllis family. We plant the little bulbs about four inches deep in a sunny position in loose well-drained soil.

As the seed ripens and the grey-green foliage disappears in the earlier part of the summer, it is a good plan to plant them with some carpeting plants such as aubrietas or *Phlox subulata* so that there will be no bare spots after the foliage has died down.

Both species are easily propagated by seed or offsets. The profusely produced seeds should be gathered when ripe and sown in flats in February, or in a seedbed in the open as soon as the soil is warm enough in the spring. The bulbs are planted in the latter part of September or early October.

SALMAGUNDI

THE SILVER ANNIVERSARY series of *Bulletins,* each devoted to a particular region of our vast country, has been made possible only by the generous cooperation of many members of the Society, and especially by those of the Washington Subgroup working under the direction of Helen Morris. Many of the articles bear names which have never before appeared in the indexes of the Bulletin, and it is to be hoped that this will not be the only time they are listed there. More material has been received than could be included in four numbers, so that we have a limited supply of articles which will delight our readers in the coming year. In addition, we hope to continue with selections from Mr. Mitchell's "On Eastern Cliffs" dealing with Mt. Katahdin and the Gaspé Peninsula. To all who have so generously contributed material, our heartfelt thanks.

* * *

The final number of the Anniversary series, to be devoted to the Rocky Mountains and Great Basin, originally scheduled for this issue, has been delayed by the pressure of other duties; we hope that it will be possible to bring it out in April. For January we have drawn on material which we had planned to use later in the year. Our choice has been somewhat restricted, for several articles which we should like to have used this month contain illustrations which would have overtaxed the allowance for cuts. We shall publish these from time to time as it becomes possible to do so without upsetting the budget.

* * *

Mr. Oleg Polunin, whose account of his Kashmir expedition gave such pleasure to our readers, has recently returned from a highly successful bulb-collecting expedition in Lebanon; some fifty-five species, including orchids, cyclamen, *Iris histrio,* crocus and colchicums are among the spoils. Word of the expedition was received too late for inclusion in the *Bulletin,* but we hope to be able to announce in the near future another, and even more important, project which Mr. Polunin has in mind.

* * *

It is pleasant to report that Doretta Klaber's excellent and delightful book, "Rock Garden Plants", is selling well, and that she is receiving many inquiries as to where the plants she mentions may be obtained. It is greatly to be hoped that this may encourage Mr. Kolaga, and others, to continue to carry a supply of good rock garden material.

* * *

Bernard Harkness writes, relative to Mrs. Klaber's book: "It seems an unfortunate coincidence that in the second short paragraph of the foreword, two references to Bailey's "Hortus Second" might lead one to think that the ortho-

graphic system of "no capitals are used on specific names and the double i is dropped in the endings" were the policy of the L. H. Bailey Hortorium publications, when quite the contrary is true. The third edition of "Hortus", in preparation, defers to Dr. Bailey's deeply felt aversion to elimination of capitalization for names honoring people . . . by retaining capitalization of such specific names. Even though the latter may be a losing battle, the genitive double i ending is, I believe, approved by most botanists and the tendency now is to correct old orthographic errors in this respect".

Touché! We must confess that we have followed the current trend to decapitalize largely because it simplifies matters and avoids a vast amount of consultation of books not readily available. Capitalization of personal names is easy enough, but some of the other rules are baffling. Perhaps taxonomists have only themselves to blame.

* * *

While the supply of long articles on hand is sufficient for one or two more numbers of the *Bulletin,* more are always welcome. There is an urgent need for short notes, one to four pages of double-spaced typing, to serve as contrast to more extended material, and to fill in "chinks". Some of our readers express a great preference for the shorter contributions, which they may read in occasional spare moments. Many subjects are particularly suited to this treatment: comments on some rare or favorite plant, an unorthodox treatment that has made a difficult subject happy, a note on the occurrence of a plant in the wild. An abundant supply of such material will be of great help to your editor, who because of a constantly increasing load of academic duties, finds it necessary to prepare most numbers of the *Bulletin* far in advance, during occasional holidays. If *every* member (or even half) would send in a brief article, his task would be much easier.

* * *

The year 1959 has been, weatherwise, one that will be long remembered. After the severe and usually snowless winter, which exacted heavy toll of plants in many localities, the hot (and here excessively humid) and dry summer added further to the slaughter. Letters from England tell of native trees and shrubs dying in the drought, while a correspondent in Scotland mentions having to bathe at the homes of neighbors blessed with a slightly more adequate water supply. Yet many plants in the British Isles seem to have prospered abnormally, and there are few reports of losses in gardens there.

Many of the western states were stricken with the worst drought since the dust-bowl days of the 1930's. Nevada, Utah and parts of Wyoming were especially hard-hit, and many ranchers, without pasture or feed for winter, were forced to begin selling off livestock in midsummer. Plants, especially at lower elevations, were missing, even those which had done fairly well in the dry summer of 1958. *Aquilegia jonesii* and *scopulorum* had put out very few flowers, and had not set any seed; *Townsendia montana,* revived by a shower, was budding two months late. The desert ranges of Nevada and western Utah, and the region around Bryce Canyon, suffered so intensely that it may take years to restore their flora. Only in Colorado did conditions seem fairly normal, and in the mountains around Leadville plants were in far better condition than during the preceding season. Yet we failed to notice several plants which had been plentiful a year before: we hope that they were merely overlooked in the frantic excitement of a bountiful harvest.

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