

BULLETIN
of the
AMERICAN
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IN A SOUTHERN OREGON GARDEN

OLGA W. JOHNSON, *Grants Pass, Ore.*

David Crawford's death occurred in December, 1961, not long after the writer had begun to take notes in the Crawford Garden. Mrs. Crawford shortly afterward left for Florida and did not return before this article had to be mailed. It is hoped, with her help, to provide a sequel at a later date.

MR. LUCIUS BYMAN of Canyonville, Oregon, herself a well-known grower of alpiners, used to say joshingly of her friend David Crawford, that he was not interested in a plant if he could see it without a glass.

It is true that Mr. Crawford had that instinct of a true rock gardener for plants selected through ages by certain rigorous conditions — each specimen an economical concentrate of hardihood, with its own concise dignity or charm, or both. Not that he confined his approval to thimble-like clumps: one of his favorites was *Carlina acaulis*, which may have flowering stalks up to a foot tall (though scarcely more than half this in scree as the Crawfords have grown it); this small thistle has a simple and symmetrical basal rosette of silvery leaves beautifully cut, waved and spined, and silver-white flowers in tune with the foliage.

Before Mr. and Mrs. Crawford came to Grants Pass in southwestern Oregon, they lived at White Salmon in the Columbia Gorge country, on the open and sunny north side of the river — the Washington side. Perhaps it was the climate and surroundings there, and the fascinating native plants, that sparked their early interest in rock gardening. Moved to Grants Pass, Mr. Crawford was annoyed by the brash foundation wall that supported the north front porch of their new home. There was not space for shrubbery between the wall and a cement walk that circles the house. Already rock-plant minded, he began to pile up rocks against the foundation, sloping them to the walk and setting small plants among them. Today there are several scores of plants in this bit of space, a varied collection including many unusual species, with something in bloom almost the year through.

The back yard, with quite a number of native trees still in place, slopes downward toward a ravine which must once have been a creek course. As the

Crawfords cleared and leveled the area somewhat, stumps and piles of rock and debris were disguised in the same manner as the north foundation wall, by collecting attractive rocks to heap upon them, and planting the crevices with plants that liked such well-drained locations. Adeline Crawford says the result is a collection of rock plants, not a rock garden. Yet the allure of the whole effect, at any season of the year, equals the allure of each miniature treasure. Tufa and driftwood add to the interest in some sections. Only a city lot, yet so many varieties of plants have been tucked with care and love into so many corners and upon so many ridges and peaks, that exploring among them is like a mountain adventure minus the huffing and puffing—and the struggle through wilderness tangle, for the garden is beautifully groomed.

The soil among the rocks is from the woods and from a continuous backlog of compost mixed with gravel, sand, rotting wood, peat and other ingredients according to the demands of the various plants. All parts of the garden are shaded at some time of day, which is an advantage during the hot dry summers of interior Oregon. Many plants were obtained from nurseries in this country and Canada, notably from Alpenglow. The Crawfords also collected plants in the wild in several western states. Quite a few of the plant residents have known no other home as individuals, although their seed-providing parents grow in far places of the earth.

ON THE SILVER SIDE

One of the most fascinating features of the Crawford garden is the prominence of small-scale shrubs, many no bigger than one's fist. (The flat ground-huggers will be considered later under a special heading for this type of plant.) Many of these earn their places by form and foliage alone; others provide a bonus of showy bloom.

It is a little difficult to define the attraction of such twiggy, bristly, gray little shrubs as *Alyssum spinosum* (*Ptilotrichum spinosum*), *Teucrium subspinosum*, *Corokia cotoneaster*, and others of this type grown by the Crawfords. To the average gardener they would look insignificant and lifeless. I wonder whether gardeners who have never been attuned to desert growth enjoy them as much as some of us westerners do. Perhaps almost any rock gardener would see in them the ultimate in adaptation to saxatile, arid or impoverished conditions, and enjoy the very skeletal quality of their design. *Alyssum spinosum* is a real porcupine, with "bitty" gray leaves, and tight bunches of "bitty" white flowers; there is also a variety *roseum*. The bark of *Teucrium subspinosum* (from Europe) is cottony; the stiff spine-tipped right-angled branchlets bear minute sessile leaves of dark gray-green, and minute rosy-purple flowers followed by sessile brown-tinted silvery fruits. (Several branches given me in early fall, some with a thread of root or two, some rootless, seem to be alive in a pot of sand set outside against a building.) The angular *Corokia*, a member of the Cornaceae from New Zealand, is said to reach six feet in height after many years, but is scarcely six inches "big" in the Crawford garden, looking somewhat like a pale dwarfed Japanese tree; it has only a few scattered little leaves and starry little yellow flowers followed by red berries.

A tree-form gray shrub of somewhat more robust character is *Crassula sarco-caulis*, which in summer has clusters of fleshy deciduous green leaves at the tips of the branches, and bears many small pink flowers. Then in winter it is equally interesting for its thick gray bark and stark twisted silhouette. This is tender, but weathered the winter of 1960-61 at Grants Pass; the down-to-zero weather of January, 1962 (rare here), may finish it, unless the snow coating protects it sufficiently.

In the same meager manner are *Genista horrida* and *Erinacea pungens*, both

sun-lovers—but these are legumes and become transformed in blooming season, the former with golden flowers, the second with lavender ones. *Genista pilosa* and *G. villarsi*, also yellow-flowered, are more prostrate. *Cyathodes colensoi* from New Zealand is another small and silvery resident, but is more heavily leaved than those previously mentioned. It bears at the pinkish tips of the branches small, sweet, cream-colored flowers, followed by rose-red berries, and is said to reach as much as twelve whole inches in height.

Also of the silvery class, but in greener and softer mood, is *Artemisia schmidtiana nana* from Japan, less than six inches high. This has been a little fussy, Adeline Crawford says, but is now flourishing in a scree-like spot, with as much sun as possible. A shrubby-based eriogonum from Montana looks like *E. subalpinum*. *Veronica pectinata rosea* is quite prostrate, with gray-hairy foliage and short sprays of deep rose flowers white on the outside. *Zauschneria californica*, a heat-lover, is blue-gray leaved and woody, but its whip-like branches flay about in a careless sprawl; its lackadaisical manners are forgiven for the sake of the audacious red-orange tubular flowers that appear late in the season.

HEATHS AND OTHER PEAT LOVERS

Andromeda polifolia compacta is neater and only half as tall in the Crawford garden as *A. glaucophylla*, and is especially beloved. The heather-like large-belled daboecias are represented by tiny *D. azorica* and *D. cantabrica praegerae*, also red-flowered. They must be judiciously pruned to keep them in neat form. *Calluna vulgaris* varieties *minima*, *foxii nana*, and 'Mrs. Ronald Gray' are among those grown by the Crawfords; *foxii nana* is tiny indeed, but sparing of bloom here. Ericas include *E. cinerea* 'C.D. Easton' with gray-green leaves and pink flowers in late summer; *carnea* 'Viveli' with crimson flowers in winter; and *vagans* 'Mrs. D. F. Maxwell', a Cornish heath with wiry branches, bearing rose-cerise blooms in the fall. *Cassiope mertensiana*, native of the state of Washington, Mrs. Crawford has found difficult; it is hanging onto life but not making much progress. The leaf-scales are very tight on the whip-form branches, the flowers white. The heaths are not grouped together in one place in the Crawford garden, but are scattered about in especially prepared spots, often with other ericaceous plants.

Of the gaultherias, the Crawfords have imported *G. procumbens*, the winter-green, from Michigan; *sinensis*, obtained from Stryker, is a tiny compact personage decorated in fall with blue berries; *nummularioides* (Himalayas) is low-growing, with heart-shaped leaves on strand-like branches. It produces here dull pink flowers and a few black berries.

Leucothoe keiskei from Japan is quite happy in Oregon; it grows not more than eight inches tall, the red effect of the semi-prostrate stems augmented in fall by red leaves which earlier were shining green; the flowers are ivory in typical pendant sprays. Smaller and more rare and precious is *Arcteria nana*, also from Japan, only three inches high after several years in the Crawford garden. The fragrant flowers are like bells of lily of the valley, Mrs. Crawford says, but hardly big enough to see. It wants slightly acid soil.

Marcel LePiniec (now of nearby Phoenix, an outpost of Medford, Oregon) gave his friends the Crawfords a plant of his special form of the native *kalmiopsis* (see *Bulletin* for October, 1961), which Mrs. Crawford has labelled *Kalmiopsis leachiana pinieci*. It is very much at home.

Other residents preferring soil on the acid side are a dozen or more of the smaller species and varieties of *Rhododendron*; *Vaccinium vitis-idaea* and an unnamed native dwarf; the fascinating *Salix contortus*; and *Empetrum hermaphroditum* (from Mayfair), a compact dark green shrub resembling the heathers.

Among the unforgettables of my first tour of this garden was *Pernettya tasmanica* (said not to be hardy in the North), with thin prostrate stems and minute leaves, the white bells followed by sizable wine-red fruits marbled in pink. The whole shrub is less than four inches across, and the crowded fruits appear to sit on the very earth, almost hiding the foliage. It was as though someone had dropped upon the rocks a heavily jeweled brooch.

Botanically at some distance from Ericaceae, the shrubby polygalas also prefer peaty soil. The Crawford garden has *P. calcarea* (Great Britain), mat-forming, with bright green pointed leaves and bright blue pea-shaped flowers; *P. chamaebuxus*, three inches "tall", with cream and yellow flowers, and *P. c. rosea*, with pink flowers. *P. chamaebuxus* colors in fall like a huckleberry, Mrs. Crawford notes; *P. calcarea* seeds itself, but not eagerly enough to become a nuisance.

All these little upright shrubs and others, together with scores of prostrate and creeping plants both shrubby and herbaceous, might be said to form the architectural framework of the Crawford plantings. Within this pattern, hundreds of herbaceous saxatiles of varied form flourish with grace.

DAUBERTONIA

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

A PLANT CAME TO ME AS "scarlet wisteria tree", and I had some difficulty in identifying it as a *Daubertonia* or *Sesbania*. The only reference to it in my books is in *Sunset Garden Book*, where it is described as neither wisteria nor tree, but a showy tree-like shrub, deciduous, half-hardy, and short-lived. It should be a jewel for the South and may be well known there, but the nursery catalogs I get from there do not list it.

It is one of the very few "trees" which I consider appropriate in my rock garden. It casts very little shade, and the roots grow straight down, deep enough so that they do not rob their neighbors of moisture. The hotter and drier the summer, the more clusters of big pea-shaped flowers it produces. They come at every leaf axil and rebranch from the base of the bloomed-out clusters. The color is orange-red or scarlet. The leaves are ornamental, being pinnate like locust leaves, while the trunk and branches are dark reddish. The single whip which comes up always curves and often divides into several leaders which themselves arch, making a very picturesque effect.

It seems to me that it should do as well in the North as geraniums, as the seedlings which came up in May bloomed by late August, quicker than many annuals. It blooms all during summer and fall until stopped by frost.

Water withheld entirely during summer does not stop its blooming, if it is planted in loose gravelly soil, the only kind I have tried it in. The young plants I transplanted all lived and showed no ill effects, but because of the root structure I believe older plants would be hard to move—a fault that seems characteristic of the pea family.

The seed pods are very large and numerous, about four or five inches long, with four ridges or wings. They hang all over the bush while the new buds are forming and opening.

Daubertonias grows three or four feet tall in one year, and have a maximum of six to ten feet where they are hardy. They bloom on new wood, so should be pruned severely in late fall. 'Flame' verbena makes a good companion as it blooms at the same time and takes the same conditions. I cannot say just how hardy this shrub is, as we have had quite mild winters lately, but many plants succumb to wet weather or some other cause.

SOME WESTERN ALPINES MET IN 1961

CHARLES THURMAN, *Spokane, Wash.*

ON JUNE 25 AND 26, 1961, we attended the Northwest Regional Meeting of the American Penstemon Society at McCall, Idaho. On the field trip into the mountains east of McCall, we saw several penstemons, among which was a good color form of *P. globosus*. At the pass called Lick Creek Summit we met the lovely *P. montanus* var. *idahoensis*, along with a white cluster type azalea and *Spirea densiflora*, all at their peak of bloom among the bear grass, *Xerophyllum tenax*. On huge granite boulders we found *Petrophytum caespitosum* in silvery mats, and the lovely vase-like clumps of *Penstemon venustus* were everywhere. In open forests on the east slopes we saw *Aquilegia flavescens* and *Valeriana sitchensis* growing in the company of a polemonium and hordes of mosquitoes. After lunch at a forest camp we went back to the summit and climbed an 8000 ft. peak to the northwest of the pass. At about 7500 ft. we discovered a new penstemon with dainty creamy-faced lavender blooms on six inch stems above a mat of narrow foliage. The fact that there was only one flower at each of six nodes along the stem was what attracted our attention to this little fellow. Back at the meeting we could find no trace of anything resembling this plant in any of the floras available. We brought several plants home, and if the grasshoppers did not get them all, we hope to find its identity next year when it blooms. At the summit we found clumps of the alpine lady fern, *Athyrium alpestre* var. *americanum*, growing among the huge granite boulders which were strewn, topsyturvy, everywhere. We made several new friends at the meeting, from whom we have acquired more new penstemons.

A couple of weeks later, we made a trip into the mountains of northern Idaho, along the Canadian boundary, where we met disappointment by using all our time in seeking the trail to Smith Peak, 7680 ft., a trail which logging operations had obliterated. By mistaking another peak for our mountain we wound up in a huge basin and never did get beyond the spruce timber. We had planned to compare the alpine flora of these Idaho Selkirks with that farther north in Canada, where we went the next week. Here again we were to meet defeat in the form of a snowslide which had wiped out a bridge on a mining road leading back into the 11,000 ft. Selkirks north of Duncan Lake, B. C. After driving 250 miles, we decided to try another mining road which led us to Utica Mountain, an 8000 ft. peak to the north of Kokanee Glacier Park. After a ten mile ride on our trail bikes we arrived at an alpine lake below towering cliffs of limestone draped with mats of *Dryas drummondii*. We circled the lake on talus slopes dotted with patches of indescribably lovely pink *Epilobium latifolium*. In the shade of the spurs running down from the summit were clumps of *Salix vestita* with waxy deep green deeply veined rounded leaves, among which bloomed *Erythronium parviflorum* and *Stenanthium occidentale* with its quaint bronze bells. Up through the talus we found nice plants of *Rhodiola integrifolia* and *Leptarrhenia pyrolifolia*. At the top we found an alpine aster creeping in the scree, while *Penstemon ellipticus* was everywhere. In peaty meadows under the recently melted snows were fields of *Phyllodoce empetriformis* and its white sister *P. glanduliflora*. As far as the eye could see, the 8000 to 12,000 ft. granite peaks stood rank on rank, and we could see five huge glaciers, some on southern exposures. The only things reminding us that we were still on earth were the infernal No-seeums that chewed relentlessly on neck and face.

Our next trip took us to southwestern Washington and beautiful Mt. Adams, a 12,401 ft. volcanic cone capped by glaciers and overhanging cornices of awe-inspiring dimensions. Here we camped at Bird Creek Meadows directly

under this magnificent sight, where in one mile of trail we crossed fourteen glacial streams tumbling over rapids and falls, and lined with flowers, among them *Dodecatheon jeffreyi*, *Gentiana calycosa*, *Pedicularis ornithorhynca*, and fields of *Lupinus arcticus* var. *subalpinus* setting the alpine landscape aglow with brilliant colors. In the clumps of subalpine fir, Sitka spruce and white barked pine were flowers of numerous castillejas and *Pedicularis bracteosa*, along with *Eriogonum salsuginosus*. On the interspersing pumice scree were perfect plants of the lovely prostrate *Lupinus lyallii* with dainty spikes of blue and white above silky rosettes of foliage, and here and there the tiny eight-petalled flowers of *Lewisia pygmaea*. On the upper talus slopes and scree beds we found *Eriogonum pyrolaeifolium* and another eriogonum whose tight balls of brilliant orange yellow, turning to red with age, smothered the mats of bright green foliage. In company with these were the cream to red balls and meaty leaves of *Spraguea multi-ceps*, while under boulders on the high moraine ridges was a lovely large yellow daisy resembling a townsendia, which we have not been able to identify. Here too was *Arnica aurantiaca* in mats under the boulders, with its lovely large yellow daisies. In little basins we found silver leaved rosettes of pinnate leaves with short stems and dense clusters of white flowers, still a puzzle, and a lovely lavender erigeron with prostrate spatulate leaves in rosettes and stems about four inches high. There were many other alpinics, but most of them transplanted poorly because of 100° temperatures for weeks after we had brought them home.

On the way back, we visited the Goat Rocks area which lies between Mt. Adams and Mt. Rainier. Here we found the flora quite similar to that on Mt. Adams. We had time only for a hike up to Goat Ridge Lookout, from which it appeared that one could almost reach out and touch these two giant volcanic cones to the north and south.

Our next trip took us to one of the botanically most interesting areas we have ever visited. Mt. Stuart lies at the southern end of the portion of the Cascade Range which is known as the Wenatchee Mountains, composed of granite. From this mountain south, the Cascades are composed principally of basalt and are volcanic in origin. Here are found numerous species which do not occur elsewhere in the western mountains.

Upon arrival at the campground on the Teanaway River, whom should we meet but Dr. Kruckeberg, making collections for his studies of the serpentine areas of the West. After a short chat, we headed up the trail for Iron Peak and some of the species which he told us grew there. First we found *Polystichum scopulinum* growing in the scree, along with carpets of *Arctostaphylos nevadensis* with brown stems and evergreen leaves. Up the trail we found in a bog seeds of *Dodecatheon jeffreyi* and *Pedicularis groenlandica*. Near the top we came to serpentine outcrops where the beautiful Lemmon's fern (*Polystichum lemmonii*) was in every crevice, and along a stream grew the alpine maidenhair (*Adiantum pedatum* var. *aleuticum*) with densely imbricated leaflets of dwarf stature. At the saddle we found *Douglasia dentata* full of ripe seed, and *Lewisia columbiana* was everywhere. *Cheilanthes densa* and *C. gracillima* graced the cliffs and rock outcrops, and on a sheltered ledge we found *Polemonium elegans*. A watercourse was lined with varicolored castillejas and the maidenhair and alpine lady ferns. After losing the trail which had been obliterated by age, we shouldered our heavy packs and hastened down to camp before darkness set in.

Early next morning we took the trail for Ingalls Lake at the foot of Mt. Stuart. After three miles of perpendicular trail up Iron Peak we found spread out before us a sight never to be forgotten. Across a deep chasm cut by Ingalls Creek stood the Stuart Range, a knife-like ridge of almost perpendicular granite cliffs with only an occasional stunted tree. At its western end, rising abruptly

above the level of a 7000 ft. lake stood 9700 ft. Mt. Stuart, which tapers to the east, in jagged pinnacles, for some fifteen miles. Here was a challenge for the most hardened of mountaineers, the roughest, wildest piece of mountain in our great outdoors. After a long spellbound silence, we started looking at our feet, where grew dwarf forms of *Erigeron compositus*, *Eriogonum ovalifolium*, *Silene lyallii* and *Eriophyllum lanatum*. Here too were stunted white barked pine, subalpine fir, and alpine larch (*Larix lyallii*). *Chaenactis thompsonii* we had found on the way up. After descending into the basin below us, we climbed another ridge, and there below us lay the deep crystal clear waters of alpine Lake Ingalls in a setting of grandeur such as we have never seen in many years of mountain climbing. From our perch on the cliffs above the lake, we could see the twelve inch trout cruising in search of insects, and on our way down we found one of the choicest alpine we have ever met. Rosettes of dark green, meaty leaves hugged the rocks and the exquisite deep pink blooms of *Claytonia nivalis* thrilled us with a new find. Along the shores we found patches of *Mimulus alpinus*, *Erigeron aureus*, and *Chiogenes hispidula* blooming on the screes below patches of melting snow. Here was the alpinist's Mecca, if ever we shall meet it. It even surpasses Beartooth Pass, which we used to think was it. We shall bend every effort to return next season for a stay at the lake and a try at the mountains and those trout who tantalized us so boldly.

Our final trip was a hasty one to some of the favorite haunts of Dr. Worth. We visited Alta, Utah, Red and Bryce Canyons, the north rim of the Grand Canyon, Zion and Cedar Breaks. The main object of our search was the seemingly lost *Lewisia brachycalyx*. We failed to find the plant itself, but we did locate its habitat, and if the rancher who promised to send us plants in the spring is faithful, we shall have accomplished our mission. We collected a few cacti, some penstemon seeds, and some dwarf alpine from Brian's Head, an 11,000 ft. peak north of Cedar Breaks. On our return trip we visited Beartooth Pass again and found it very dry and parched. We searched in vain for some of the treasures we had found there in a July many years ago.

If one could climb every inviting peak that he meets in the west, I am sure he would find many new treasures for the rock garden, but he would need several lifetimes and several sets of legs. We have enjoyed this season's collecting trips more than any previous ones, and hope to return to some of the best we have discovered, for a closer look next year.

HELICHRYSUM BELLIDIOIDES

MRS. A. W. MC KENZIE, Masterton, New Zealand

I am sending to the Exchange seed of *Helichrysum bellidioides*, the Mount Egmont form which has much larger flowers and is more neat and compact in growth than the one found in other parts of both islands of New Zealand. Mt. Egmont as you will know is an extinct volcano standing alone on the west coast of the North Island. It is a perfect snow covered cone sweeping down to the sea. It is on those slopes, amid native forest and huge tree ferns, that the three hundred acre rhododendron park is being planted with a wide variety of rhododendrons from all parts of the world; but it was from the other side of the mountain that I collected the helichrysum seed.

Helichrysum bellidioides grows in the grass and scree, forming wide patches of silver gray leaves that become completely covered with white everlasting type daisies about an inch across, with the central disc of pale green. On my rock garden in full sun it is quite hardy and withstands heavy frosts.

IN MY GARDEN

RAY WILLIAMS, *Watsonville, Cal.*

ROCK GARDENING IN THE coastal areas of central California, as might be expected, enjoys a great many advantages denied to places with more rigorous climates. There can be no doubt that it has a great many disadvantages too, due to the absence of a strictly enforced winter dormant period, a situation that a not inconsiderable number of alpine plants resent keenly. But that which is denied us by a too mild and open winter is, I think, more than compensated by our being able to grow in the garden much of that wealth of material so often grown in the alpine house, or even in the heated greenhouse, in many other places.

Australia has given us almost no alpine. Some have said that *Helipterum anthemoides* is the only one, but I for one would not be so drastic. I think that they must mean that only one plant of alpine character has been introduced. From what I can glean from the writings of J. W. Audas and others, there are a great many more awaiting introduction. As I can grow it, the helipterum is a rather poor little specimen with the aspect of a linum and the flowers of a white bracted composite, scarcely a subject to write home about. However it is nice and also not too easy and I treasure it, although sometimes I wonder why.

Now for adventure's sake let us explore the genus *Banksia*. *Banksias* for the rock garden? Who ever heard of such a thing? But perhaps it can be true, at least for the venturesome gardener in a land of suitable climatic conditions. They are Protoids to be sure, and the Proteaceae are noteworthy for their difficulty of cultivation and their glorious beauty of form, foliage and flower. Most of them are much too large for the average rock garden, shrubs of four to ten feet, or even trees. So far I have found two of the proper stature for all but the smallest garden. They are still on trial without guarantee of their ultimate behavior. Indeed, one is still in the liner stage without a winter's trial. This one is *B. baueri*, the koala banksia, and its ultimate height is a reputed fifteen inches. From the look of its tawny furry leaves it should be a little wonder. Its flower color has not been reported. The other, now in its third year in California, is *Banksia repens*, with a reported height of eighteen inches and with pink flowers, not a common color among banksias where red and yellow predominate. Should *B. repens* never bloom, it is still worth while. It has the aspect of a furry fern, unfurling its leaves in the same manner from a creeping root stalk. The upper leaf surface is woolly, golden brown, while the lower is silvery gray, densely netted with fine lines. The plant withstood temperatures down to 19°F. last winter without damage and presumably can be considered hardy in this locality; however, more testing must be done before it is released to the gardening public, and it also must show its ability to bloom in this climate.

Another treasure from the Australian bushland is *Myoporum debile*, a dwarf among a race of big shrubs. It is perfectly prostrate and the branches radiate from a central rootstalk to form a circle of ground-hugging stems well clothed with attractive long, narrow, jagged leaves (2 in. by $\frac{1}{4}$ in. approximately), deeply cupped and channeled. The flowers, quite large for so small a plant, are produced in the axils of the leaves. They are violet blue in color, upfacing and prominently visible, and the berries which follow are white changing to pink and finally to blue. Perfectly hardy here, *M. debile* has been tested in a variety of soils, all with success. However, we have not learned how to propagate it very rapidly, so that it must remain a scarce plant for some time.

Anyone visting our garden can plainly see that the rock garden in which I took so much pride, and devoted so much labor and care to build, goes to weed and looks utterly abandoned much of the time. This is of necessity, not choice.

We, with all our other horticultural interests, simply lack the time for it. In a fertile land such as this the big and little unwanted plants find the rock garden an ideal home. In one way this is a good thing insomuch as it does show which plants have the ability to hold their own in the face of formidable competition and to thrive on sheer neglect. We try to get it back in shape at least once a year, but this is by no means often enough.

I shall try to describe a few of those rugged individuals growing in our garden. *Putoria calabrica* is one of the most satisfying plants imaginable for the California rock garden, taking the place of *Daphne cneorum* of more northern gardens, and of much the same aspect. As it grows here, it is a more compact and cushion-like plant growing to two feet or more across and a possible six inches in height. Bright pink blooms smother the plants for three or four months in summer, and are followed by equally bright red berries for as long as hard frosts will let them hang on. However, putoria has not the delightful fragrance of the daphne—quite the contrary, for the odor from bruised leaves is quite offensive. The daphne can be grown here too, and sometimes is, but it is for the skilled cultivator only and not to be recommended for the ordinary garden.

The onosmas too are hardy, long lived plants that thrive on neglect and are able to stand long periods of heat and drought as well as winter rains and frost. *O. tauricum* is the most often seen, by no means a new plant, but certainly not common in this locality. Its lax growths sprawl around among the rocks most attractively and produce numerous strings of down-facing tubular flowers of clear yellow. *O. albo-coccineum*, which is probably not its true name, is an even more attractive plant, forming domes of fuzzy blue-silver leaves and producing rather short croziers of white flowers that change to pink or rosy red. *O. nanum* is the dwarf among those I have been able to grow, and is of much the same aspect as *O. tauricum* except that its bristly leaves are mostly less than an inch in length and its flower stems are rather upright and produced in great profusion. The flowers are pure white and the forest of stems brown off immediately after flowering, so the plant must be cleaned up if it is to be at all tidy.

The hypericums are excellent rock plants for the California garden. *H. empetrifolium nanum* from Greece is one of the best I have found. Of shrubby growth, it has the rock-hugging habit of the best of the rock garden cotoneasters, following every contour of the stone and rooting wherever it may find a crevice in which to gain a foothold. Clothed with tiny dark green leaves a quarter of an inch in length, it displays ample red brown wood to add much to its attractiveness. Like most hypericums, it blooms profusely and through most of the year in a mild climate.

Hypericum trichocaulon from Turkey has somewhat the same aspect, except that it is a sprawling shrub with softer wood and more ample foliage, and loves to cascade over a stone or a bank. Its growths are trailing stems that radiate from a central rootstock, rather than the continuing woody trunk of *H. empetrifolium* which loves to cling so tightly to the rock on which it grows. Both species have the typical yellow flowers of their race.

The scabiosas, too, can thrive on neglect and are excellent plants for gardens that are not continually well cared for. *S. graminifolia* with its narrow grassy leaves and violet pin-cushion flowers, each on its own slender six inch stem, can and does stand long periods of heat and drought. *S. lucida*, with a little tuffet of more scabiosa-like leaves, has only three to four inch stems, and more brilliant violet blue flowers. It appreciates a somewhat more moist position than its grass-leaved sister.

South Africa cannot and should not be ignored in the California rock garden. The bulbs are especially valuable inasmuch as they are compatible with almost

any kind of planting, alpine, dwarf shrubbery, or succulent. The *romuleas* come in a wide range of color according to species and seem to hybridize little or not at all. I have noticed no hybrids among the many seedlings that come up here and there throughout the garden. *Romulea sabulosa* is one of the most brilliant and carries an immense flower for a *romulea*, up to three inches across, fiery red with black featherings in the throat. *R. latifolia* is smaller, but still a sizeable flower, white with a touch of yellow in the throat. *R. rosea* is variable in size and of clear unmarked red. *R. bulbocodioides* is yellow and blooms very early. *R. citrina* is an even better yellow species from Namaqualand. It is still very scarce here and may not be of as easy culture as some of the others.

Geissorhiza is another genus that naturalizes easily and looks at home among the rocks. *G. erosa* is one of the most brilliant of bulbous flowers, a dazzling cerise that literally sparkles in the sun. It is ten inches in height with foliage sparse and pleasing.

There are so many bulbs from South Africa alone that it would require a volume to describe them adequately. Not all would thrive in any one garden, but almost any garden in a climate where citrus fruits can be grown can enjoy a wide variety of them. South Africa has by no means all that is good and desirable among bulbs for the California rock garden. I write of them because they are largely unknown in the rock gardens of most of the United States and Canada.

We have no cultural difficulty with the hardier, better known genera, so treasured in most rock gardens. The species tulips, crocus, and our own *calochorti* and *brodiaeas* grow easily enough, but they do fall prey to gophers, field mice, birds and insects. Nature seems to have given them no protection at all from anything with an appetite. I find *calochorti* and tulips rather hard to keep in the garden. A gopher can ruin a planting in a single night, and tunnel the earth for yards around, looking for more. Trapping the gopher may be sweet revenge, but does not restore the bulbs.

I have been lucky enough to have grown the flowered *Nomocharis mairei* and *N. aperta* for two years. They are slender little plants of remarkable beauty and always seem healthy enough while in growth, but I cannot help that uneasy feeling that something may happen to them during their long dormant period and that they may fail to show up some spring. They grow in a moist well drained bed in the company of *Primula melanops*, *P. yargonensis*, and *Narcissus cyclamineus*. They are always a little later than the narcissus, but the primulas, which bloom intermittently over a long period here, keep them company. The flowers of both species are at first nodding, later upfacing. Both are variously speckled, on a background of deep rose in *mairei*, white or blush in *aperta*. The culture required for Asiatic primulas apparently suits them very well. Unfortunately I have but little space that can easily be made suitable for the culture of such plants.

THE BROOM CROWBERRY IN NEW JERSEY

G. G. NEARING, *Ramsey, N. J.*

THE TRUE CROWBERRY, *Empetrum nigrum*, is a typical rock garden plant, taken for granted by all books on the subject, yet I have never been able to make it thrive. Like all arctic plants, it evidently resents the long spells of intense heat typical of our region.

It has, however, a relative, the broom crowberry, *Corema conradii*, which inhabits the coastal sands from New Jersey's pine barrens northeastward, though nowhere abundant, and is found also on a couple of acres at the summit of the

Shawangunk ridge, west of Poughkeepsie, N. Y., at an elevation of 1800 feet. Nowhere else in this region is it found.

Corema resembles the crowberry except that its berries are too small to be seen without a lens. In mid-March it flowers—just a purple fluff of stamens on the male plant, nothing showing on the female, but at that season flowers with us are so scarce, we welcome any kind.

One day about seven years ago, walking through the Shawangunk stand of *Corema*, I wondered whether it would endure rock garden culture better than *Empetrum*. To take up plants of so scarce a species would not be fair, especially as I was not sure they would endure transplanting, so I hunted around a male specimen until I found a side shoot with a few roots on it, then a similar branch of a female. To remove these did no harm to the plants.

In a moderately shady slope of my rock garden, I prepared a pocket by digging in plenty of sand and peat, and there set the two *Corema* shoots side by side. Today they form a solid mat nearly three feet in diameter, six or eight inches high, that threatens to engulf every little plant in the vicinity. Each autumn I cut back the edges rather severely, and naturally have tried the cuttings to see if they will root.

These cuttings are moderately successful, though slow, averaging perhaps 50% the first year, more rooting when replaced for a second season in the frame. So there seems to be no reason why *Corema* should not take its place in the average rock garden.

Nearby is a tuft of *Erica carnea*, the only heath dependable here, and even it suffering some winter injury, though it manages to bloom off and on through most winters. Comparing the foliage, that of the *Corema* is denser, and not quite so dark a green, yet if you did not know, you would suppose them to be plants of the same family.

On the other side, *Bruckenthalia spiculifolia* thrives in black-green splendor, completely hardy, one of the leading ornamentals of the rock garden, but requiring shade. Superior to the *Corema*, it is so totally different in texture that they hardly compete, but rather supplement each other.

These three are the only plants of their type which have done well in my climate, the extreme north of New Jersey, elevation 400 feet. Other species of *Erica* and many varieties of *Calluna* are so undependable that I have tried only a few. None survived.

But the vigor of *Corema conradii* is outstanding, suggesting that it might be used as a ground cover in sandy soil. In shade that exactly suits *Bruckenthalia*, this *Corema* leans avidly toward the sun, so I shall try it in full sun as soon as I have propagations ready to set out. The sites it chooses in the Shawangunks and in the pine barrens are sunny.

Whether the same species from the pine barrens would behave equally well, I do not know. Perhaps someone who has tried it will inform me. There must be some reason for the scarcity of this plant. Why doesn't it spread over the whole Shawangunk plateau, instead of confining itself to a tiny spot on one isolated ridge? Why is it so scarce on the pine barrens that only a few botanists know where to look for it?

There is of course the possibility that I made a lucky find, a particular plant more amenable to cultivation than the average. But there are two plants, a male and female, both thriving and intertangling. To have chanced on two exceptional individuals would be unheard-of luck for me. After working with *Corema* at least six years, I recommend it as a worth while ornamental for the rock garden, flowering at the first hint of spring, and aspiring to be a ground cover in full sun.

ALONG THE SKYLINE TRAIL

MRS. RALEIGH HAROLD, *Stayton, Oregon*

Mt. Jefferson, 10,495 ft. high, is the kingpin of our scenic area and with many lakes helps to make spectacular this portion of the Skyline Trail that runs along the divide of the Cascade mountains from Washington to California. This is truly a summer paradise for fisherman, hiker, wildflower lover or photographer, and is easily reached from Highway 22, which hooks onto No. 30 across the east, or No. 26 into Portland. Breitenbush Springs, a "hot" springs resort of medicinal value with store, hotel and cabins, and all modern conveniences, is approximately seventy-five miles from Salem, our state capital.

This hot springs area, the grounds, paths and surrounding woods are still largely as nature made them. There are firs, hemlocks and cedars with pink currant, ocean spray and hazelbrush as undergrowth, and a carpeting of synthyris, twinflower, oxalis, anemone, various ferns and mosses. Breitenbush River, a cool mountain stream, runs through the grounds, and is spanned by a foot bridge of rustic design, while huge rock formations add to the scenic effect.

The area above is reached by a mountain road with high center, but is not bad if one drives slowly. After thirteen miles one reaches Breitenbush Lake with clean camp grounds, running water, tables and fireplaces which have been provided by the Forest Service. A resident ranger is there during the "summer", which is from the middle of July to the last of September. The rest of the year the region is covered with snow.

Up here, to the trees of lower elevations have been added larch, mountain hemlock and some pine, and the underbrush has changed to low mountain ash, some willows and deciduous white azalea. The ground is carpeted with *Phyllo-doce breweri*, from a bluish red through several lighter shades, *Cassiope mertensia* and, in the damp spots, dodecatheon, some huge and some smaller. If they are all one species varying in size according to location, or several, I am not botanist enough to tell. Their colors are rich and not much varied.

The road leads on for five miles with lakes and magnificent scenery along the way, to Olallie, where there are a store and a road to eastern Oregon. None of the fishing is as good as down at the dam at Detroit Lake, so the fishermen tramp around with the flower lovers or keep an eye on the young fry who are having a blissful time taking everyone for a ride on the lake in a rubber rowboat.

Just at the edge of Breitenbush Lake campground, the horseback trail up Skyline way provides a good trail for hiking. Here, the trees are smaller and farther apart. Many pines, hemlock and juniper, having spent most of their lives under snow, are only a foot or so high and perfect subjects for "bonsai" training. The trail leads to many lakes, and many persons pack or hike in to the glacier, a distance of ten or twelve miles. Proceeding up this trail by foot, among the heathers we find good sized stands of paintbrush of the usual red shades, with some pink and a plant or two of pure white. Gentians are here too, although not yet in bloom as they were when we were here two years ago. They are a really true blue, about eight inches high. The alpine asters are everywhere that there is sunshine.

Going farther up the trail, we come upon a stand of alpine lupine of a good deep blue, and two different groups that have plants with pure white blooms. That these plants, in the short season at these heights, do bloom, set seed and ripen it, is attested by the way the various plants grow in drifts or stands.

If we had more time, as we left the peat soil and found more shale, we should have found beautiful creeping phlox and possibly evergreen penstemons.

We have found no penstemons of any species in this or the hot springs area, but on French Creek, which is on a level with the town of Detroit, there are perennial herbaceous varieties, mostly with wonderful blue flowers.

Occasionally there is a rose mimulus along the fisherman's heaven of the Santiam River, but usually only yellow spotted ones with smaller flowers and more compact growth. This area, about half way home and considerably "down" from where we have just been, is also the home of the lovely *Cypripedium californicum*, the white lady's slipper, but cattle and logging have made it hard to find. *Calypto bulbosa* and epipactis are still plentiful.

The Detroit and Idanha area also sports *Iris chrysophylla*, a soft yellow with brown or purple markings. The miles of *Iris tenax*, in all shades of blue and purple, extend up to this region and where the two species meet there are some rare whites.

The western evergreen rhododendron of varying pink shades grows from the Detroit area to the summit, mostly under the firs. It and the large salal make dense undergrowth. The western white dogwood in May, and the vine maple in the fall, add much color to the dark green slopes.

Elk Lake, Monument Peak, and Tumble areas are abundant with huge huckleberries and scenery, and one can drive to any of them. All this within close range of a modern highway — that's Heaven!

THE 1961 SEASON . . .

BERNARD HARKNESS, Rochester, N. Y.

This year we had no occasion to drag out the hose for supplemental watering until September which was almost without rainfall. Too many cool and wet days, however, cut down on the visits of bees and other pollen distributing agents, consequently seed and fruit production is rather shy this fall.

The most charming plant of rock garden statue new to the garden this year came from Mr. Michaud's Alpenglow Gardens. *Geranium dalmaticum* is absent from the standard references; a note in an English magazine says it is a recent introduction. Its six inch stems of light pink flowers bring them just above the mat of leaves, flowering is generous in quantity and length of season. I am always too late in collecting seed of *Geranium* species and I appreciate the attention it takes by those who contribute them to the Seed Exchange.

Our Seed Exchange serves to disseminate seeds of interesting plants other than strictly rock garden subjects. Lately there has been a flurry of interest in the perennial foxgloves and I do not hesitate to include in my contribution this year *Digitalis Shischkini*. Seed of this came from the Moscow Botanic Garden which collects in seed from all of the Soviet Republics and I cannot at the moment state its true provenance. In its first season of bloom it sent up a main flowering spike to six feet with several laterals. Color of the flowers is buff with dark brown reticulation, similar to *D. laevigata* and others, but close-set on the two-foot long spike.

From Kyoto University seed came in 1959 of *Hosta longissima brevifolia*. Though following closely upon the flowering time of *H. lancifolia*, it seems reasonably distinct. Its flowers are larger in length and petal spread with the lobes reflexed somewhat more. Pedicels are very short and there is a large bract which is wrapped around the flower stem and part of the flower tube. *Hosta lancifolia* has a longer pedicel and a small bract that is reflexed. Flowering this year was from Sept. 5 to 15. There were about ten flowers per scape. I hope that seed will mature for listing.

THIRTY BY ONE HUNDRED FEET

EDGAR L. TOTTEN, *Hendersonville, N. C.*

NO. THAT IS NOT THE size of my new property, but what I have seen growing on a piece of land of that size in western North Carolina.

Dot Fowler's notes read, "May 5th, 1961. A few miles west of Cordona on U. S. 00 at the intersection of state road 0000 we found an abundance of both white and pink trilliums and *Viola pedata lineariloba* growing on an embankment on the right side of the road". Everything Dot has seen in the past ten years is minutely recorded in her little black book.

So on October 8th she, Bill, Mrs. Totten and I foolishly began a sixty-five mile journey in search of trilliums and violets. I had suspicion that they had died down many weeks earlier, but thought perhaps we could locate the trilliums by their seed. No such luck — not one trillium did we find.

If we were disappointed in not finding the trilliums, we were well rewarded, for in a space no larger than thirty by one hundred feet we collected or saw more plants than one would believe possible in so small a space.

Gentiana quinquefolia and *G. villosa* were growing along a small drainage ditch. On drier land up the embankment were *Kalmia angustifolia* and *K. latifolia*, *Rhododendron maximum*, *Gaultheria procumbens*, its berries still in the white stage, *Asarum virginicum* and *A. shuttleworthii*, and what seemed to be a cross between *A. virginicum* and *A. canadense* with foliage not as dull as that of *A. canadense* yet not as glossy as that of *A. virginicum*. There were *Iris cristata* and an unidentified taller species. *Galax aphylla* was growing in full sun as well as in full shade under *Rhododendron maximum* just beyond the road right of way. When growing in sun, galax leaves appear to acquire a crinkly effect, while those in shade are more smooth and of twice the size. Galax is perhaps the most abundant of all our native plants in spite of having been collected for decades to garnish our morning grapefruit and other dishes. Two azaleas were there too: the one near the ditch was definitely *R. viscosum*, the one on higher ground perhaps *R. nudiflorum*, but as we were at an elevation of around 4300 ft., it could have been *R. calendulaceum*, which is usually more prevalent at this or higher altitudes. Near the azaleas was a large stand of *Goodyera pubescens*, which is very abundant in this section. In the drier spots, *Ascyrum hypericoides* was plentiful, as were various solidagos, one a very attractive little fellow some six inches tall, which might be admitted to our rock gardens. Asters both tall and short were everywhere, in various shades of blue and purple.

We were not far from one of the stations of *Shortia galacifolia* — at least a station mentioned by Alice Lounsbury in her book, "Southern Wildflowers and Trees". The whereabouts of any present station of shortia seems to be a deeply guarded secret. Inquiries made of those supposedly in the know would have one going north, south, east or west. I shall try to regain my long lost southern accent and perhaps I shall be more successful.

Our president (Epstein — not Kennedy) and Jerry Lukins are coming down this weekend. The purpose of their visit, I suspect, is not so much to see the beautiful mountains, waterfalls and plants, as to make me out the biggest exaggerator in North Carolina. I have been telling them of *Rhododendron maximum* twenty-five feet high, and of *Kalmia latifolia* with a trunk ten inches in diameter, both growing within a hundred feet of my house. Should the temperature be a bit snappy while they are here I shall let them bake their shins before an open

fire of kalmia logs and for breakfast serve them some of that famous *Oxydendron arboreum* (sourwood) honey.

Our new home is just outside the city limits of Hendersonville, at an elevation of 2200 ft. The summer climate, while a bit on the damp side this year, is otherwise ideal. (During one 24 hour period in August a rainfall of 10.8 inches was recorded. This caused some flooding, but fortunately we are on high ground and did not suffer from it.) The summer day time temperature seldom exceeds the high eighties, and the nighttime is usually in the low sixties. Our electric fan was not used once all summer.

A small rock garden has been built and a few plants placed therein. The stones were not ones that would lead to architectural masterpieces of construction. A different type of construction from that employed in New Jersey is essential. Here we must build to dispense with moisture instead of retaining it. Stones lying flat on, or leaning downward from, an embankment are not too attractive. By the use of an abundance of gravel, I hope I have provided a place where I can grow at least some of Ralph Bennett's pets, and with our altitude and summer moisture, perhaps I can raise some of the things on which he has given up. *Ericas* and *callunas* seem to do very well here, while they were most disappointing in New Jersey.

Other than *Phlox subulata* (which here is called "thrift") I have been able to find only *Sedum sieboldii*, *Aethionema warleyense*, a few heathers and *Campanula garganica* in any of the nearby nurseries. This is not a rock gardening country. *Saxifraga sarmentosa* is grown as a house plant, and when I suggest that it can be grown outdoors, they seem to think I am just a bit queer. The Asiatic gentians, which will not flower for Ralph, will be full of bloom before the middle of November. They are in quite deep shade, planted in almost pure pine needle leafmold. *Gentiana loderi* and *G. sino-ornata* flowered well during the summer in a much sunnier location. Various *tricyrtis* are just finishing flowering and seem to enjoy our climate.

Dwarf rock garden shrubs are also difficult to locate. I did find some of the most dwarf Mugho pines imaginable. The nurseryman claims they had been in the nursery row for about ten years, yet a few of them were only about four inches high with a spread of about eight inches. Others in the row were many times larger and a few with upright naked branches were about two feet tall. Evidently they had been grown from seed.

On Sunday, October 22nd, Dot and Bill Fowler telephoned at 9:30 A.M., inviting us on a trip to the mountains to view the gorgeous fall coloring of the foliage. Near Asheville we entered the southern end of the Blue Ridge parkway and drove along it some twenty miles before turning northwest over eleven miles of gravelled road down the mountain—a real plantsman's paradise with *Rhododendron maximum* forming an almost complete arch over the narrow road. *Mitchella repens*, with bright red berries, in enormous drifts and ferns of many kinds clothed the moist embankments.

As we approached the small settlement of Dillingham we saw the skins of two large black bears being nailed to a tobacco barn. We stopped to chat for a few minutes with the brave huntsman, who went into minute detail about his skill, his gun, and his faithful Plott hound who treed the animals. As we drove away I wondered how much weight the poor bears had gained at each telling of the story. The mountains must abound in animals as well as in wild flowers. Now that we have had our first frost on the higher mountains I shall venture a little farther from home, knowing that I shall not encounter rattlesnakes or copperheads.

IN THE KILDEER MOUNTAINS

CLAUDE A. BARR, *Smithwick, S. D.*

ON MY VERY PLEASANT visit to the North Dakota Horticultural Society and Garden Club Convention at Dickinson last August, I found the program scheduled a free time for Saturday morning and suggested a visit to Medora and the Roosevelt Memorial Park. But for me the Kildeer Mountains were an even more alluring name. Dr. G. A. Stevens' "Handbook of North Dakota Plants" had reported a mystery plant there, a low growing, creeping, or very short stemmed clematis. I had long desired to see it and to study its features of habitat.

On my remark that I thought the morning might not give time for the drive up there and the search which might be entailed, Society President Leo J. Krank at once volunteered to take me there. Hearing of it, State Game Warden Ed Bry, familiar with the locality through his official duties, offered his car for the jaunt. Saturday morning at 7:00 the party was ready, a thoroughly congenial foursome: Ed, a born nature lover and flower and animal photographer of fine talent; Leo, an accurate observer and as interested in native plants as a botanist; his son Norbert, at ten an ardent nature trailer; and I.

The Kildeers are a rugged area approximating a township in extent, standing some 700 ft. above the surrounding lower land, with some level grass land on top, with trees covering many slopes, bordering the summits and filling summit depressions. Limestone strata in surface exposures and in escarpments were conspicuous and are an important factor in the remarkable vegetation to be noted. The Kildeers are privately owned, the few roads are suited to the utilization of the property as pasture. Not far to the north and northwest other high points are to be seen and much rugged country more distantly, toward the west and Little Missouri River.

Ed explained our purpose to a crew of hay makers near the north foot of the highlands and gained permission to enter. Almost at once I was astonished by the profusion of trees and the kinds. Oak and aspen were the conspicuous trees everywhere and paper birch was frequent even in seemingly dry places. Not a pine was to be seen but there was much creeping juniper on north slopes.

Ed drove his car up to the sky on a road cut into the mountain side and through bedded limestone. Around a thrilling curve that reminded me of Pike's Peak he came to a sudden stop. "The clematis should be right up here", he said and clambered up the road bank of loose stones and sliding, dry, whitish soil. Determined to miss nothing, I began writing names of plants as I came upon them, on a Medora folder which was handy. *Phlox hoodsii*, bladder-pod, Indian bread-root, purple prairie clover, sulphur flower, pink cone-flower, northern bed-straw, wild blue flax, golden dome and a goldenrod and geranium-like *Heuchera richardsoni*, most of them worthy plants for the garden. Purplish flowered *Astragalus striatus* was there and a low, cushiony astragalus new to me, determined later as *A. vexilliflexus*, also purplish flowered. *Penstemon nitidus* and golden pea and most others were out of flower or showed only a trace of color. Foliage now was green but mostly very dwarfed, showing effects of earlier drought. Then *Erigeron caespitosus* came up with a scattering of fine white little daisies produced since the rains.

Leo thoughtfully followed me for the steepest part of the climb until I had unlimbered and could make my way on my own. Ed hadn't found his clematis

when we caught up. "I'm sure it was right here last year," he puzzled. But nothing like a clematis leaf was in sight, green or dry.

While Ed went back to the car for something, the rest of us explored farther into a more north-facing area, for 40 or 50 yards, then seated ourselves on large blocks of limestone. All about us spread a not very dense carpet of dainty pinnately divided leaves, all pleasantly green. Though we were discussing scenery and weather with enthusiasm as Ed came up, he spotted *Clematis pseudoalpina* at once, even with bloom long since past. I dug three of the deep rooted plants for comparison with the Black Hills form which I have in my garden. The soil here was rich, the slope turned a little away from the sun, and there was some light aspen shade.

Up slope my list of species continued to grow. Finally there were more than seventy kinds, trees, shrubs and flowering plants, and doubtless many were missed. It takes close looking to see some kinds when out of flower. The list, many with no common names, might be tiresome to read. I was happy to find our South Dakota state flower, the pasque, and another beauty I know in the Black Hills, *Liatris ligulistylis* with its inch wide heads of fine purple. One drought-stunted stem of this bore but one head, bravely upright. It is capable of a raceme of twenty.

In the summit grassland there were different flowers. We crossed some patches of fractured limestone with little or no grass. Here were tiny plants with clustered bright green leaves and outspread involucre empty now of seeds and dry. They were erigerons, certainly — some sort of daisy. Leaves were less than an inch long, seeming entirely free of hairiness even under a good pocket lens. Only a few flower stems were more than an inch long. Careful study did not exactly relate the plant to any description in Rydberg's works and it is not remotely like any erigeron in the "Handbook of North Dakota Plants". How much had its present appearance been affected by the dry year? Or was it a new species? The few plants we dug are still alive in my very dry garden and I hope to be able to hold them for further observation and help in identification.

Intermingled with the daisy was another diminutive plant, a stemless daisy, *Townsendia hookeri*, as dwarf in leaf but ashy gray, its involucre plump, sessile, the bracts carefully and characteristically infolded. Though not credited to Dr. Stevens' book it may not be new for the state, as it may have been included under the name *Townsendia exscapa*. *T. exscapa*, a larger leafed kind, less gray and larger, later flowered, was not seen.

Many goldenrods in good color and the handsome anise hyssop were seen along the roundabout road we took for the descent. Nearly down at the foot of the mountain again, in a deep ravine along a tiny stream such plants as the tall pinkish white violet were seen, along with a meadowrue, a wintergreen, and a dainty fern, *Woodsia scopulina*. The inevitable question comes, what hadn't we seen? There remains the conviction that one morning is all too brief a time to discover the wonders of the Kildeers.

AN AROID ADDENDUM

BERNARD HARKNESS, *Rochester, N. Y.*

A number of the hardy Aroids described by Mr. Ginns in a recent *Bulletin* have been grown in Rochester for some time and I hope to establish more. If only *Arisarum* which I saw as a early spring woodland carpeter near Setubal in Portugal proves to have in it that little extra and unexpected hardness of other Aroids I shall be more than content. Young plants are here and ready for trial another year.

Arisaema amurense as introduced by seed from Munich in 1953 has produced plants that give pause to plantsmen familiar with our two native *Arisaemas*. It has the foliage characteristic of Green Dragon, *Arisaema dracontium* and a flower not unsimilar to the common Jack-in-the-Pulpit, *Arisaema atrorubens*. Floras of the Amur River region are not easily come by, but I believe the name is accurate.

Dracunculus vulgaris is a newer name for *Arum dracunculus*. Rather surprisingly it has been grown outdoors in Rochester for the past ten years in plots with some natural protection in numerous gardens. Sometimes the flies effect fertilization and seeds have been in our Seed Exchange.

Pinellia ternata, synonym *P. tuberifera*, is treated in the R. H. S. Dictionary of Gardening. It is suspected that its introduction to U. S. gardens has been adventitious. In Rochester it is known to have come in by means of some Azalea plants from a Southern nursery. It was not recorded in Hortus II. However, it seems of sufficient interest by its novel variation of the spathe and spadix pattern to stay with us as a garden plant.

ON EASTERN CLIFFS – V Katahdin – the North Basin

JAMES E. MITCHELL, *Barre, Vermont.*

THE STORM HAD SUBSIDED by 4 A.M. and we were up by 6 o'clock. We had collected some dry wood and birchbark the night before, and had piled them back in a corner of the shelter so that, although everything outside was dripping wet, we had no trouble in getting a good fire started and soon were breakfasting on bananas, canned beef, boiled potatoes, bread and butter and hot coffee. Needless to say, there were no jaded or finicky appetites. I always eat well on these collecting trips, but those young men! How they did eat! It was almost unbelievable the amount of food those two consumed.

About 8 A.M. we started down the main trail. About half a mile from camp, a trail marked "North Basin" turned off to the left. Except for little hills and valleys, this North Basin trail was remarkably level for two and a half miles. Its general direction was north through thick woods, until it skirted the point of Hamlin Ridge, a high spur projecting from the east side of the mountain.

Immediately after we passed this ridge the trail turned west and began a gradual rise, and the forest thinned out to a stand of thin shrubs in which small mountain ash were conspicuous. We were entering the mouth of North Basin, across which extends an enormous terminal moraine of all sizes of boulders, many of them fifteen to twenty feet in diameter. This, the terminal moraine of the local glacier coming out of North Basin in the Ice Age, must have taken thousands of years to accumulate. It is three-quarters of a mile wide (the width of the Basin), extends back into the Basin at least a half mile and is hundreds of feet thick.

We were soon on top of the center of this mass of boulders, and as all trees had been left behind and the masses of dwarfed shrubs did not hide the view, we could see from here the whole of the North Basin.

One might think from the name that this basin is on the north side of the mountain. This is not true. North Basin is a crater-like hole scooped out of the eastern side, at about the center of the mountain from a north and south direction. North Peaks, 4734 ft., are small elevations rising a little above the top plain and are at just about the center of the mountain, and these peaks are just back of the center of the Basin's headwall. The basin has a depth, from the

mouth back to the headwall, of about one mile. Its average width is three-quarters of a mile. The floor of the basin, while generally level, is very rough and irregular with an average altitude of 3000 ft.

The north and west walls of the basin rise very abruptly from twelve hundred to fifteen hundred feet above the basin's floor. The south side is a very abrupt slope, covered with immense quantities of talus. The east side is, of course, the mouth of the basin with its giant terminal moraine. Two little ponds, only a few rods across, are near the center of the basin.

There is ample soil among the boulders all over the terminal moraine, and here we found lovely sheets of *Vaccinium vitis-idaea minus* of the finest earth-hugging form. Here, too was *V. angustifolium* and, quite remarkable at this altitude, the common Canadian blueberry, *V. canadense*, was found. Professor Fernald found it well up on the Basin's headwall at an elevation of 4200 ft. On the moraine, in company with the vacciniums, was the crowberry (*Empetrum nigrum*) but I did not notice its variety *purpureum*. Here was also an abundance of bunchberry (*Cornus canadensis*) and here we found a lovely little unknown goldenrod with large flat yellow heads on ten inch stems. I have not yet identified it, but it is not *Solidago cutleri*, which we might expect to find here. Like *S. cutleri*, it blooms very early. I brought it home with me.

We had a large area in front of us with only six or eight hours in which to work it, but thanks to the writings of Professor Fernald and the four botanists with him who, in 1900, thoroughly explored this basin, I knew that the floor, the north and west walls were the places to hunt for alpine plants, so we wasted no time hunting elsewhere.

Wilder did not get far into the basin before he turned and retreated in front of swarms of black flies, but my son Eugene and I stuck it out for five or six hours more, although we had constantly to fight them with swinging handkerchief or hat, and when we did come out the blood was flowing from the back of my ears and from several places on my face. I had brought fly-dope with me, but we had carelessly left it at the camp. I was told by the caretaker that in another fortnight the flies would disappear. For this reason most people visit the mountain in August.

On the floor, not far from one of the little ponds, I found a very dwarf form of *Kalmia angustifolia* with extraordinarily bright pink flowers. As usually found, lower down, the color is rather poor, a faint pink, but these were of a deep, bright shade. It is a good rock garden plant, doing well anywhere in neutral or acid soil in full sun. Professor Fernald, in 1900, noted this plant.

A quite remarkable shrub or tree grew here on the floor of the basin: a prostrate form of tamarack, *Larix laricina*, sometimes called American larch. This tree attains a height of sixty feet in the lowlands, and the twelve to eighteen inch creeping form looked really odd to me. I do not think that it has any garden value.

I found, also, *Loiseleuria procumbens* on the basin floor. This little beauty is not as plentiful on the parts of Katahdin which I visited as it is on the Presidential Range. But I visited so small a part of the mountain that I would not think of saying that any plant is rare there, just because I have not found it plentiful.

Leaving the floor, we went up the north wall. From the mouth of the Basin this had looked perpendicular and unclimbable, but even from there I knew from the vegetation on the wall that it could be scaled. My son climbed almost straight up and went along the face of the cliff toward the headwall on the west end of the basin. I climbed about halfway and went in the same direction, keeping always below him but always several hundred feet above the

basin floor. This probably sounds dangerous, but it was not. There were always shelves from one foot to four feet wide running along the face of the cliff, and whenever the shelf I was on ran out, there was sure to be another either just above or just below the one I was on. Of course, in such work on strange cliffs, the climber is sure, occasionally, to come to a dead end where he can go no farther, nor is there any shelf above or below him within his reach. In such cases he must, of course, retreat and try again at a higher or lower level. However this north wall, in spite of its height, more than fifteen hundred feet above the floor, is not a difficult cliff for a careful climber, and personally, I never take any chances. I prefer to retreat. I take no pride in my mountain climbing ability and therefore do not feel humiliated when I have to retreat, where a better or more venturesome climber would proceed. As the Irishman said, "I'd rather be a live coward than a dead hero."

On some of the broader shelves I found clumps of *Juniperus communis* var. *nana* only about six inches high. Not only is it very dwarf, but the foliage is much finer and softer than that of the common juniper. It is a fine rock garden evergreen. I had never seen it before in the United States, but found it very plentiful on Ile du Massacre in Bic Harbor, Quebec.

The part of the north wall nearest the mouth of the basin was the driest, and therefore the poorest botanizing ground, but we had not gone more than a third of the way to the basin's head when I began to find things, and at about the halfway mark (had there been marks) I ran into a moist, most interesting spot where the vegetation made me at once exclaim, "Lime!"

Here were magnificent plants of *Campanula rotundifolia* with extra large bells, the kind we find on lime soils. Of course this plant grows occasionally on acid soils, on the Presidential Range, for instance, but these acid soil plants cannot compare with those growing on lime, and they are never plentiful on acid soil. Here, on a supposedly acid soil, they were large, luxuriant and plentiful; but these alone would not have made me suspect lime. However, growing in the same stretch were dozens of fine foot high specimens of *Potentilla fruticosa* in full bloom, a mass of golden flowers an inch and a half across. I have never seen this beautiful little shrub growing wild in acid soil. It is very common on the lime cliffs in Vermont and in the Gaspé Peninsula. Here, too were hundreds of clumps of *Castilleja pallida*, the best I had seen south of Gaspé. This plant has also been found on acid soils, but I have never found it growing anywhere except on lime.

Right at this particular spot the black flies were particularly plentiful and extraordinarily ferocious. As I swung my hat around my head fighting them off, I quietly took down from one of the top shelves of my memory an almost forgotten line. It read, "Early in the century, *Saxifraga aizoon* was found on these north walls. The soil about it was analyzed by Professor Wherry and pronounced neutral. Wherry wondered where the lime could have come from to neutralize this acid soil." My answer to Professor Wherry is that there is lime here in the soil, or else that the water, which here wells out of the cliffs, is charged with lime. I have said elsewhere in this book, "No real field botanist who knows anything about growing plants needs to test a soil to tell if there is lime in it." The species growing in the soil tell the story to those who can read it. Here on these north walls is a spot where the plants spell the word LIME in indelible letters.

In this moist spot I found scores of the lovely orchid, *Habenaria dilatata*, with extra long spikes and extra large flowers. I believe them to be the best I have ever seen, and gathered a dozen of them. They are one of the easy hardy orchids in moist soil, but I hardly expect these plants to hold their size in my

garden. However, I hope they will, and hope springs eternal in the gardener's breast.

Well up on the north wall as I was approaching the west headwall, I found some lovely clumps of the quite rare Selkirk's violet, *Viola selkirkii*. These little clumps were in full sun and were a mass of bloom. I dug half a dozen or more, but my bag was heavy and I had not yet reached the center headland, so I could not load the bag too heavily. About an hour later I found two or three clumps of *Viola conspersa*. The boreal species, *Viola palustris*, has also been found on these walls.

The *Viola* genus is so complicated, the different species hybridize and run into each other so readily, that the genus has given nearly every eminent botanist many a headache. The late Professor Ezra Brainard is recognized by most botanists as the ablest authority on North American violets. He recognized seventy-five species in North America. Other botanists have recognized double that number, while Asa Gray, doubling up the species of other botanists, accepted only about forty species. Brainard, who made a lifetime study of the genus, found nearly a hundred natural hybrids. I myself have found three hybrids in the Green Mountains. A viola that was placed as *V. canina* by the collector has been found on the north wall of this basin, but as *V. canina* is a European species, this was undoubtedly a mistake, and the find might have been a hybrid.

I found in one spot quite a quantity of our two eastern heathers, *Cassiope hypnoides* and *Phyllodoce caerulea*. Eugene reached the top in one place and reported that the top above the north wall of the basin had the same species as we had found on the Saddle the day before.

Shortly after noon I reached the headwall which forms the west side of the basin. Knowing that Professor Fernald had found a very dwarf form of the rare *Andromeda polifolia* at about 4200 ft. on this headwall, I went up high and soon found a shelf where grew plants of this rare species only three inches high. Needless to say, I collected a dozen or more. Here, too, I found a dwarf galium with cream colored bloom. It proved to be *Galium kamtschaticum*. It was low and rather scraggly, but I assumed it might be a good plant in cultivation. Alas, that night and the following day, lower down, were two of the hottest days of the year, and by the time it reached Vermont, this frail plant was no more.

Arnica mollis, a rare plant on Katahdin, but plentiful in some spots on the Presidential Range of New Hampshire, has been found on both the north and west walls of this basin, but I was not fortunate enough to meet it there.

However, I did not hunt over the west wall a great while after I had found *Andromeda polifolia*. The black flies had begun to get the best of the fight, and shouting to my son, I went down to the basin's floor and made for the mouth of the basin as fast as possible. It was three days before my face thoroughly recovered from the chewing of these little black devils.

Although the Black Flies (I capitalize these words because, as the Irishman said, "They are mighty big for their size"), although these terrors drove me out, yet the North Basin trip was botanically a huge success, and I will say with the members of the 1900 Botanical Expedition, that this basin is about the best botanizing ground on Katahdin, although certain species are much more plentiful on the Saddle and on the Tableland.

I left Katahdin with the feeling that I would like to spend a week there. It is not only a wild and rugged mountain, but from a botanical and geological standpoint a very interesting one. After being inaccessible for many years, it is now one of the easiest mountains to reach in the East.

ROCK GARDENER'S PARADISE — II

GRACE F. DOWBRIDGE, *Springvale, Maine*

NEXT TO THE HOUSE, on the north side, is a narrow bed which is almost level with a two foot rock wall holding back the soil at the bottom, and running up the steep slope toward the top, as far as it is needed. Many shade-loving woods plants thrive here with a minimum of morning sunshine in summer: red and white baneberries with their feathery white spring blooms and showy shining red berries, or white "dolls'-eyes" in summer; bloodroot and dwarf bleedinghearts; a small colony of mayapple with huge umbrella foliage and shy hanging bells; wild geranium and meadowrue; a tall clump of black snakeroot with the euphonious name of *Cimicifuga racemosa* (learn this one to astound your non-botanical friends), waving eight-foot-plus spires, always teeming with honeybees; foamflowers, violets and crested iris vying for groundcover privileges; and purple closed gentians finishing off the season. (A flash idea—just the place for *tricyrtis* for even later interest here.) A small part of the lower edge of this bed is reserved for the exotic tuberous begonias, and many of my house plants are summered at the other end, so that this is a very useful area.

Just above the rock garden there is a huge eight foot boulder which holds endless fascination for visitors. A deep hollow in the center was filled with soil and planted in a miniature landscape, some twenty years ago. The tiny-leaved form of *Potentilla fruticosa* has grown into a delightfully twiggy, twisted and picturesque "tree" only about two feet high, covered with its little gold roses in spring and at intervals all summer. A *Daphne mezereum* grew and bloomed well for nearly ten years, but finally died out and has been replaced by a seedling. A clump of pink moss phlox falls to the ground at one end, and a dwarf meadowrue wanders around. Most of the other end is covered with hens-and-chickens and a few dwarf sedums which creep further over the edge of the soil each year, and along every crack and crevice in the rock. A tiny white trellis is set at the end of a little rockpath across the rock, and climbing fern spreads its delicate stems and foliage in imitation of a vine. A few very small birds, frogs, and a turtle are placed here and there to amuse the children—and adults as well.

Let's go across the lawn to the other rock garden before exploring more wildflower and shrub areas. As mentioned before, this is the steepest rise, with a line of several huge boulders at the top, a narrow rock wall built between them at one spot, matching their height, and rocks fitted in along the slope to hold the soil and plants in pockets or narrow beds. Bearberry vines, moss phlox in varied colors, little golden flowered coronilla, carpet the steepest parts together with wild strawberry and ferns, and spready sedums, which must often be restrained. Wild columbines and bluebells add their bits of color.

Where the slope begins to level out, a low wall makes a deep bed for choice rock plants, a perfect place to enjoy the truly miniature kinds, and to test unknown ones for a year or two. The moisture seems to vary here, from one end of the bed to the other, and I am still experimenting with different plants. Clumps of the lovely *Parnassia caroliniana montana*, collected on Vermont's Mt. Pisgah and grown for several years in the other garden, have settled here just as happily, blooming profusely in August and increasing slowly. Dainty *Erigeron hyssopifolius* shows off its pink to white daisies against a gray rock. Tiny yellow and white drabas, dwarf scabiosas, the truly little *Aquilegia akitensis* and *A. alpina*, and the taller but dainty *A. ecalcarata*, *A. micrantha* and others; a dozen or more interesting potentillas, including *PP. villosa*, *multifida*, *flabellifolia*, *rupestris*, *nevadensis*, and species collected in the West by Dr. Worth.

There are also many erigerons, such as *EE. trifidus*, *compositus*, *pinnatisectus*, and unnamed ones, showing my special weakness for "little daisies." Several clumps of the early *Corydalis bulbosa* are enchanting in spring, and seedlings of the western *C. aurea* will bring summer color in the future, I hope. A few clumps of truly dwarf phlox are here, such as *P. subulata brittoni* in rose and white, and the tiny 'Schneewitchen'; and some restrained dianthus such as *D. alpinus* (no blooms yet) and a few others of uncertain names. *Gentiana septemfida* and its erect form do fairly well, and the lovely *Saxifraga primuloides* is increasing its rosettes in a rock crevice. Lewisias, townsendias, phacelia, physaria, alpine polemoniums and penstemons—countless such little treasures are being tried here.

Among the dwarfish shrubs are *Rhododendron racemosum*, *Lavendula spicata*, heathers, and the seldom seen *Hypericum buckleyi* with pretty light green foliage and bright gold flowers, petals turned back from the crown of golden stamens, the whole only a foot high and perfectly hardy.

The boulders on one side have flat six foot high faces, with a low juniper, sedums and bluebells softening the top; and one of the large-leaved cotoneasters started at the foot and already sending effective flat sprays of green across the rock face. A wide deep bed of soil here is planted with dwarf dahlias each year, providing bright color for many months. A rock wall holds the soil, and below it the soil remains quite damp and shady, a spot self-chosen by cardinal flowers for their wonderful summer display. One clump of the very pale pink variety is, for some reason, always much later in bloom. I hope to add the pure white form here. Violets and ferns make a nice groundcover, and are pulled away as the rosettes of the cardinal flower begin to spread. A dwarf veronica carpets the rocks, and a clump of *Arenaria laricifolia* was resettled in one spot and is proceeding to veil the rock beneath it with filmy foliage and myriad white flowers.

On the south side of this garden, the woods come down to the lawn level—hemlock, maple, ash, a tall hop-hornbeam, and others. A clump of yellow lady-slipper displays its handsome yellow blooms against a rock, flanked by the deep green formal fronds of Christmas fern. Nearby are clumps of maidenhair and feathery bladderfern. A row of bergenia follows a curve of the rocks, exciting many questions about its showy spikes of pink and huge shining leaves. A new path through the woods to the brook begins here, and will be fun to develop in future seasons. There are several paths winding through the rock garden and up the slopes.

At the foot of this garden is a semi-circular bed which is colorful in spring with many species of *Primula*, from soft yellow *P. veris* and hose-in-hose, varicolored polyanthus, *P. denticulata* and lovely *P. rosea*, to the later *P. sieboldii* and *P. japonica*. There are a few *P. auricula* which bloom sparingly, but which, I suspect, are getting too much sunshine. I hope to find a happier spot for these. Polemoniums and Canada phlox add their soft blues, and a clump of spring beauty, *Claytonia virginica*, shows its upright stems of inch-wide white saucers for a month or more. Trollius and geums add yellow shades and are followed by rose mulleins and blue lobelias for summer color, and sometimes annuals interplanted among the primroses. An iris bed extends farther away from the shaded area, making a gorgeous spring show, and many colors of daylilies give a season-long display nearby.

Turning back again toward the other side of the garden, we follow the grassy lawn around the beech tree and a wide area of old stumps and rocks, carpeted with ankle-deep moss, patches of dwarf cornus, wood anemones, sweet fern and dwarf blueberry. *Gentiana linearis* self-sows all around in the moss and shows countless stems of its light blue tightly closed bottles in August.

Between the low ground and the rocky hillside is a wide row of shrubs: several huge *Rhododendron maximum*, collected many years ago from the "top secret" local colony; a tall clump of sweet white flowered *Rhododendron viscosum*, and several mountain laurels; hobblebush with its showy white bloom and berry clusters which turn lovely red and eventually deep blue, but are seldom left that long by the hungry robins, catbirds, thrushes and towhees. Rhodora and a dwarf shadbush are here, and here I tried to establish my small Oregon grapes, but they only survive, and perhaps need more sun, yet must also be protected from winter burning here—one more problem to be worked over. Seedlings of both the rhododendron and the laurel appear in profusion in the moss nearby, a perfect "nursery."

Between this area and the lower perennial beds is another "wild" area where a few evergreens provide partial shade for more laurels and the most-lovely *Rhododendron nudiflorum*, which becomes a huge bouquet of spicy rose flowers in May. The ground here is carpeted thickly with arbutus in all shades of pink, sometimes almost red. The choice and dainty little climbing fern covers one spot, twining happily up every plant and fern stem within its reach. Zanthorhiza spreads its pretty foliage, especially noticeable when it turns soft purple in the fall, but most interesting for its odd airy spikes of purple bloom in spring. *Baptisia tinctoria* brings touches of bright yellow along with its cool gray-green foliage clumps. One clump of orange butterflyweed adds a most effective touch of brilliant color in midsummer, and bristled asters are bright patches of lavender at its feet in fall. Another clump of yellow lady's slipper is equally happy here, and a gift of *Cypripedium candidum* from Michigan is increasing—but will it bloom? Yellow violets are here, and starry Solomon's seal with its short spikes of white "stars." Another delightful shrub here is *Spiraea arguta* (?) with feathery tiny-leaved branches smothered with tiny flowers in May, followed by almost equally effective brown seedpods. The lovely caryopteris, blue mist shrub, bloomed well for several years in the other garden, and twice here, then succumbed to the last wet spring, and is badly missed.

The nearest end of this area extends into the sunny lawn and has an edging of crested iris, wild geranium and bottle gentian, growing much as they choose. A clump of Siberian iris is bordered with old-fashioned yellow and white feverfew, a pretty combination for a wild spot. Part of this end is used for seedlings from my coldframe while "on trial," where the taller growing plants provide some sun and wind shield. Several plants of *Penstemon ovatus* do well, and Andy admired their bright blue flowers, small but profuse, while the heavy-textured basal foliage is effective in fall and winter for its rich red colorings. A mystery potentilla with handsome orange flowers is here, along with a miniature copy of only a few inches which appeared in a nursery some years ago. Neither has been named for us yet.

At the far end of the lawn is a tall old hemlock, and beyond it a wide semicircle of rocks and stumps, backed by a thicket of young hemlocks which are kept clipped to about six feet as a hedge shelter for dozens of young rhododendrons and azaleas, most of which I have grown from seed. Some of these were only a few inches tall when I brought them here, and their rapid growth has fascinated both of us. They include wild species and some hybrids, but labels were long since lost, and it is a pleasant puzzle to identify different ones as they develop and come into first bloom. Each summer new plants begin to show fat buds for the next spring's bloom, and it seems impossible to wait all winter to see them open! The soil is black and rich in deep pockets among the rocks, and a thick mulch is kept over the roots of the little shrubs.

My treasured alpine from Mt. Washington and other peaks of New

Hampshire and Vermont are also thoroughly satisfied here—*loiseleuria*, little *Rhododendron lapponicum*, dwarf laurel (*Kalmia polifolia*) with adorable little pink saucers, Labrador tea (*Ledum groenlandicum*) which spreads sideways but so far remains only six inches tall. *Potentilla tridentata* is even too strong-growing to suit me and must be gently separated from the others. Three choice dwarf willows are spreading—*Salix uva-ursi* in a nicely rounded clump a few inches tall with snowy wee pussies; *S. peasii* with bright red pussies much later and huge furry masses of seeds; and *S. herbacea* still a tiny plant but slowly growing. The little gray-leaved bog billberry, *Vaccinium uliginosum*, is also here, with the alpine goldenrod, *Solidago cutleri*, showing its short golden spikes as faithfully in June as in its mountain home, and the endemic *Geum peckii* with bright golden heads. This grew well but refused to bloom in the other garden. Here it is blooming freely—I'll always wonder what is the secret formula! *Clintonia*, lily of the valley, checkerberry and Canada mayflower grow everywhere, and *shortia* and *galax* have been added. Two round little clumps of *Corema conradi* always bring questions. These were collected several years ago, grew well in the other garden, and settled down happily here in spite of all the moving. My old plant of *Empetrum nigrum*, black crowberry, was too large to attempt moving, but a smaller gift plant has been started. One of the greatest delights here is an ever-spreading mat of twinflower, *Linnaea borealis*, with vines spilling down between and over the rocks, completely covered with countless twin-bells in early summer. Partridgeberry also blooms profusely over its lovely evergreen mats, and produces berries for the birds, while goldthread spangles a dampish corner. Rattlesnake plantain in both light and dark-foliaged forms has been started on a mossy knoll, leafy clumps of twisted stalk are nearby, and as elsewhere, *arbutus* seeds itself everywhere. The little mountain cranberry, *Vaccinium vitis idaea minus*, spreads into a wide mat around an old birch stump, covers itself with little pink bells and a very few bright red summer berries, but refuses to fruit as it does on the mountain tops.

A wide path, deep in pine needles, winds "up over the hill" where most of the large trees have been cut, as mentioned previously. The lovely green moss is creeping over many bare areas to cover and beautify them, but in other spots the sorrel and other weeds are a menace to the little plants I've started, and must be fought constantly. The only lasting solution is to "fill the vacuum" with wanted plants, I suspect. Toward that end there are already small colonies of *antennaria*, dwarf yarrow, *ajuga*, *dianthus*, thyme, dwarf phlox and penstemons. Clumps of foxglove, mulleins, larger penstemons and other things are started, and rather to my surprise, everything has behaved beautifully and seems perfectly satisfied with conditions. Many seedling asters and erigerons have been added during the summer, and without exception they have sent up new basal growth for the next season. An alpine form of *Chrysoopsis villosa* with low stems along the ground produces little gold daisies all summer long, and is a mass of new tufts of gray leaves at the center. A colony of penstemon hybrids, the popular Flathead Lake strains, mostly with *P. barbatus* blood, has been started in another spot and has been watered most of the summer, but still shows less strong new growth than plants in the garden proper in richer soil.

Many of the rocks here are half buried in the evergreen needles and duff, from centuries back apparently, and I often prowl around digging back this layer to expose the interesting formations of rock. Under this presumably acid layer is an odd yellowish soil which we expected to be poor and unlikely to grow much of anything. Hence my surprise at the way plants have responded. It must be richer than it looks, and not especially acid. (I need a soil testing outfit, plainly.) Another surprise has been the finding of pink ladyslippers seeding over

the hill in full hot sun. There are several clumps in the shade of remaining hemlocks, and presumably the other clumps were originally in shade, but they continue to bloom and increase, and new ones are appearing nearby.

A few trees and shrubs have been planted for future enjoyment: a silver spruce in a rock pocket, an arborvitae near the back of the open area, a cutleaf maple at the foot of a large boulder where we hope it will continue to look as picturesque as a Japanese landscape. A little black spruce from Mt. Washington grows very slowly and shows a slight tendency to "weep" over the rocks below. Three birches, also from Mt. Washington, are likewise slow growing and different from those here—the most interesting the round leaved *Betula glandulosa*, still only about a foot high and a twiggy clump rather than tree-like. Genistas enjoy the steepest slope and are showers of gold in spring, first *G. procumbens* and *G. pilosa*, followed by the odd flat-leaved *G. sagittalis*. *Genista tinctoria* in the old garden was too large to attempt moving, and the prickly little *G. silvestris pungens* never got dug, but both would enjoy the hillside here. Several junipers have begun to spread, including a handsome prostrate 'Bar Harbor', and two distinct gray-leaved forms collected along the coast. A little wild rose, probably the thornless *R. blanda*, bloomed last spring and produced its lovely red hips—I hope it will colonize a wide area.

The mixed evergreens and hardwoods form a background of year-round seasonal changes, depriving us of some sunset displays, and giving in exchange a welcome early summer coolness. Beyond our property is a wide boggy area where dozens of different mosses grow, to be collected and made into fascinating dish gardens, with lichens and toadstools and mossy twigs. The little brook drains down through the woods into the low swampy area below the house, running madly in the spring and after any heavy rain, drying up during the summer but leaving many damp hollows along its route. A natural winding path is open from the back rock garden to where the brook drops over mossy rocks in a little waterfall, and will be cleared of some rocks and old underbrush along the sides as we find time, and planted with woods wildflowers and ferns to supplement those already there. When I raked off leaves last spring I was delighted to find several clumps of hepatica, and hope that with encouragement they will seed themselves widely. Gift plants of wild calla, painted trillium, wild orchis and a mat of snowberry were put in the moss below a boulder where it stays cool and moist all summer. A length of rotting log was made the "home base" for the snowberry, and it seems to have accepted it and spread during the summer. Clintonia, red trilliums, cucumber-root, little wild Solomon's seal and more showy Solomon's plume along with many other little wildflowers are everywhere. The clintonia and trilliums also spread along the edge of the woods into the sunny swamp, somewhat sheltered by clumps of interrupted and royal ferns.

The open swamp is rough ground with humps of old alder stumps and hollows which are wet with running water in the spring and moist the year around. Sensitive and huge interrupted ferns cover much of the ground, but nearer the house a colony of marsh marigolds is spreading, and golden ragwort is seeding in freely, along with jewelweed which is haunted by the hummingbirds and other less desirable things. A handsome pitcherplant is settled down in a bed of sphagnum where a spring holds constant moisture, and is showing many new baby pitchers. Rose looserstrife and pink turtlehead bring late summer patches of color after the browning ferns have been cut down. Near the street edge, the lower spots have been filled with sandy soil which must have some good in it, as clumps of wild blueflag and Siberian iris are spreading and blooming each year, along with surplus early narcissi. Joe Pye weed and tall meadowrue

also mingle with several kinds of grasses and sedges, useful for winter bouquets.

Looking back toward the house, we see a low grassy bank running up to the lawn level. One section of this was thick with a tall wild mint, but a year ago Andy dug up all of this and added some good soil, held by a row of rocks along the front of the slope. Here we planted several lilac bushes and a small plant of the lovely variegated weigela. This was covered with dry leaves and a bushel basket over winter and was killed back hardly at all. Since then it has grown so much that no basket will contain it this winter. We shall probably try burlap, to prevent early spring burning. The single kerria was put in as a future ground cover under the lilacs, and this is spreading widely, much more vine-like than the commonly planted double kerria. Clumps of ajuga, lamium and sedum were planted to hold the soil, and these have spread so fast that already I am ripping out the lamium and some of the others. Among the rocks are cerastium and the little prostrate yarrow, which are delightful companions with the low flat yellow yarrow heads and the white "snow in summer." Little *Primula juliae* in dark red makes a pretty border along the lawn edge.

Between this slope and the edge of the woods is a rounded bed held by rocks and sods and filled with several years' accumulation of compost—leaves and lawn clippings and weeds, everything available was dumped here. This past year it was high enough to be covered with an evening layer of soil, and we began our planned planting of daylilies around the outer edges. The center was used, for the time being, as a nursery for seedlings and odd plants. A plant of beach artemisia was put on the rocky edge and is quite enthusiastic about its location, spreading far and wide its handsome feltly leaves. The little yarrow is used again to cover a low rock and is fast forming a tapestry down over the rocks to the ground below. Several clumps of polemoniums, both lavender and white *P. reptans* and the tall, later blooming purple and pure white *P. caeruleum*, offer foliage in good contrast to that of the daylilies. At the foot of the rocks where the banking begins is a clump of ladies' mantle, alchemilla, in a fine spot to display its handsome large gray-green leaves and a cloud of pale yellow flowers, lasting for many weeks and equally long-lasting when dried. Old-fashioned columbines with their heavy foliage and dark colored flowers also help to soften the rock masses and contrast with the day lilies.

We are back at the house again, after quite a complete circuit of the gardens, and everywhere I look I see another interesting plant which was overlooked as we went along. Tiny *Primula mistassinica* and its more robust cousin, *P. farinosa*—the bright yellow leaved *Veronica trehani* with equally bright blue flowers—*Waldsteinia fragarioides*, the little yellow-flowered barren strawberry—the true strawberry with white instead of red fruits—the dwarf foot-high liatris, and dainty *Liriope spicata* only a few inches tall—*Heuchera villosa*, with its effective foliage so much larger than that of the other coralbells, and many airy stems of white in late summer. We also by-passed *Polygonum reuteri*, that handsome member of a weedy family. A small start of this had done well in the other garden, but it was put in the wrong place here at first—probably too hot and dry; then it was moved, in the nick of time before it had dwindled away to nothing, to a cooler moist corner between a rock and an old stump, and there has been no doubt of its approval of its latest home. It immediately sent up many new shoots and flower stems, and the color changed from pale pink to red; so did Andy's comments from mildly critical to admiring. One of the great pleasures of gardening is watching the "joy in living" expressed by a plant in just the right spot, especially when we have hand-picked that spot!

Another pleasure is in the many memories of generous garden-minded friends who have contributed so much to our gardens. Almost every plant bears testimony

to some gift of a plant, cutting, or packet of seed, and I feel guilty not to have named each of the givers in turn, but such a list would include almost every part of the country as well as friends abroad. Most, if not all, are to be found in the ARGS membership, proving once again how fine a group this is. I hope that I have not dizzied you with plant names, and that you have found both old familiar names and some new ideas. Please consider this a most cordial invitation to all of you to visit us whenever possible, and to study our ROCKS—complete with plants!

CORRECTION

In Mrs. Dowbridge's inspiring article on her Rock Gardener's Paradise, *Bulletin* Vol. 20, No. 1, page 14, line 13, there is an unfortunate slip on a plant name. The most choice of dwarf shrubs described is not *Gaylussacia brachycera* (which has blue berries), but *Vaccinium vitis idaea minus*. —E. T. W.

BOOK REVIEWS

Plant Hunters in the Andes. Second edition. By T. Harper Goodspeed. 378 pages, illustrated. Berkeley: University of California Press, 1961. \$7.50.

The first edition of Professor Goodspeed's book, published in 1941, offered a rather detailed account of some of the activities of the first two Expeditions to the Andes which the author organized and in which he participated actively. Since then, there have been four additional expeditions, the last in 1958-59. The new edition retains many of the more interesting parts of the original work, and brings the account up to date with the addition of two chapters, and with brief summaries of the accomplishments of the later expeditions in regions visited by the earlier ones.

The primary purpose of the expeditions was the collection of *Nicotiana* species, in both herbarium material and seeds, needed for the exhaustive research on the genus performed by Dr. Goodspeed and his associates, the results of which were published a few years ago in a monumental volume. Activities of the collectors were, especially in the earlier years, directed largely to regions where nicotianas grow wild, but extensive collections were made of other species, some of which, notably *Alstroemeria violacea*, were introduced to cultivation. Dr. Goodspeed mentions that approximately 100,000 pressed specimens and 500 packets of seed (surely this figure is a misprint) were sent back to Berkeley. The regions visited, as indicated on the maps that serve as end-papers, embrace the greater part of Chile and Peru, a considerable region in Argentina, and bits of western Bolivia and Colombia.

The story, as the title indicates, is that of the hunters rather than the hunted, and only occasionally does the author give detailed information on the flora of a particular area. The problems and difficulties of travel in Peru, the Chilean earthquake of 1939, adventures on "Robinson Crusoe Island", a wild ride over the mountains of Colombia, the trials and tribulations of the wanderer into remote and virtually uninhabited regions, political problems and speculations are the mainstay of the book. Altogether, it makes exciting and enjoyable reading, and gives the reader glimpses of regions unmentioned in the usual bland and innocuous travel story.

The photographs, largely by members of the various expeditions, include some far from conventional subjects, including many interesting plants. Here,

and in no other book of which I know, are displayed some of the most marvellous of all the marvellous plants of the Andes, among them an *Argylia* sp. with tremendous trumpets over a mat of fern-like foliage, and a *Cruckshanksia* sp. with brilliantly colored bracts below golden tubes.

Japanese Gardens and Miniature Landscapes. Edited by Kan Yashiroda. 84 pages, illustrated. New York: Brooklyn Botanic Garden, 1961. \$1.00.

This recent Handbook is illustrated even more handsomely than its predecessors, and includes five color plates. The format is as usual, contributions by a group of writers on related topics, all excellently done. Among the articles, largely by Japanese writers, are a discussion on the subject "Japanese gardens hold up a mirror to nature"; Japanese gardens for American gardeners; outstanding Japanese gardens; bonseki, the art of sand and stone; boneki, landscapes in trays; and garden accessories in variety. It is an excellent buy at its low price.

Michigan Wildflowers. Helen V. Smith. Illustrated by Ruth Powell Brede. 465 pages. Cranbrook Institute of Science, Bloomfield Hills, Michigan, 1961. \$5.00.

One expects a book to be of exceptional worth when it appears under the sponsorship of the Cranbrook Institute, and Dr. Helen V. Smith's *Michigan Wildflowers* comes up to these expectations. It is the aim of this book to provide the amateur naturalist with a means for identifying nearly five hundred plants, mostly herbaceous, that are found in Michigan's varied habitats. Each plant is represented by an excellent line drawing and a botanical description supplemented by an indication of the type of habitat where it may be found and the time of flowering. It is a pleasure to find that the text is rarely more than a page away from the illustration pertaining to it.

A most helpful illustrated glossary, in addition to a glossary of botanical terms, is included; as well as brief cultural notes for the forty plants most commonly grown in the home wild flower garden. For the amateur familiar with keys there are well worked-out keys which should save him time in identifying his finds.

It is hard to understand why a book that bows to the scientist in using the metric system throughout, reverses itself and gives preference to common names, although the botanical names are given in parentheses, except on the seventeen color plates.

None the less, one rarely finds so much information for the money as in *Michigan Wildflowers*.

—NELLY LEE GOSLING

Our secretary will accept orders for this book. A substantial discount is available when ordered in lots of 5 or more.

As Mr. Totten presumably did not attend the Annual Meeting, it will be greatly appreciated if one or more readers will supply the editor with a report of this important event, so that members unable to attend can enjoy vicariously the events which they missed.

SALMAGUNDI

The winter just past was, for us, by far the most disastrous experienced in nearly thirty years of gardening in the Finger Lakes region. Other winters have been as cold, or even colder, so that losses cannot be blamed on temperature; in fact, several plants of borderline hardiness came through unscathed. Lack of sufficient snow was perhaps the principal factor, but the suggestion has been made that an unusual amount of sunlight during cold spells (Ithaca is normally more cloudy than even the Aleutian Islands!) was the real culprit. Whatever the cause, plants that had been here for twenty-five years or more, without suffering the slightest winter damage in the past, are dead or damaged almost beyond recovery. Encrusted saxifrages, soldanellas, *Erica carnea* and most other heaths, daphnes, some brooms, globularias, are among the losses. Nearly every plant that could not vanish underground during the winter suffered more or less damage, whether in garden or alpine house. The first estimate of loss of one-third to one-half of the plants, barring the more common bulbs, now seems somewhat optimistic, as one plant after another, weakened by the winter and discouraged by an erratic spring, continues to collapse.

Yet there is an occasional bright spot in the picture. *Morisia hypogaea*, which rarely survives a normal winter, and several other plants that we had never expected to see again, continue to prosper. This afternoon we caught a glint of yellow in the rich soil alongside a lily bed. "Another winter cress," we thought, and after a while moved over to eradicate it. There, just beginning to flower, were two plants of *Arnebia (Macrotomia) echioides*, which we have not had for many years, and of which seed is hard to come by. Whence these plants, and how they survived the atrocious winter in such obviously unsuitable soil, we cannot explain. We are content to rejoice that the Prophet Flower is once more in the garden.

* * * * *

As yet we have received no information regarding plans for the Seed Exchange for next winter, and advise holding your seed harvest pending an announcement in the October *Bulletin*.

Some months ago an article was received from J. P. Zollinger (and later rescinded), commenting on misnamed seeds received from various exchanges. Shortly afterward, there was a similar note in the *Bulletin of the Alpine Garden Society*. We have suffered similarly, sometimes from seed that we suspect was sent in by the most august sources. On the other hand, we have grown enough rare and precious plants from exchange seed to feel that the gamble is worthwhile. The chief danger is that inexperienced gardeners will grow on happily some misnamed species and send seed back under its false name, thus aggravating the situation. We suggest that if you are at all in doubt about the name of a species sent to an exchange, you follow the name with a question mark. Or, more safely, omit the species name and write "sp." (pronounced as spelled by Dr. H. L. Moore, Director of the Bailey Hortorium) followed by two or three words of description.

* * * * *

By the time the *Bulletin* reaches you, another rock garden plant nursery will be only a memory. Doretta Klaber has written us that on July 1 Cloud Hill Nursery will close. She and Mr. Klaber will continue to live there, pursuing their favorite hobbies, but there will be no plants available for customers.

* * * * *

Hard on the heels of the announcement of the Atlas Mountain Expedition, in the April *Bulletin*, came news of plans for an expedition in 1963, to the

Caucasus if permission is granted, otherwise to the mountains of northeastern Turkey and northern Persia. Four students from Kew will undertake the venture, and information may be had from B. F. Mathew, Aberconway House, R.H.S. Gardens, Wisley, Ripley, Woking, Surrey, England. The primary purpose is to collect plants and bulbs, and the expedition will not remain late enough in the field to harvest seeds of the higher alpine. However, the Caucasus is so rich in beautiful plants, many of them remarkably amenable to our climate (*Geranium renardii* and *Primula juliae*, for example), that the editor has already decided to gamble on a share in the seed harvest.

* * * * *

Early last January we wrote Mr. Epstein that we should be obliged to terminate our editorship of the *Bulletin* with this number. The decision was reached regretfully, and after several postponements: the many hours required for the preparation of each *Bulletin* have been increasingly difficult to find, because of the continually mounting demands of a rapidly expanding Department of Mathematics, and the introduction of novel curricula in the coming year, which will add greatly to our burden.

At the time of going to press (mid-June) we have received no word as to who the new editor will be, but we wish him success, and hope that you will all support him enthusiastically.

Our thanks go to the numerous contributors who have made possible the regular appearance of the *Bulletin* during our eight years of editorship, and our apologies for often having been dilatory or negligent in matters of correspondence — a cause of regret to us, but inevitable because of the vast amount of labor which the duties of editor have forced us to squeeze into an all too limited amount of time. May the new editor do better!

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