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ROCKS AND PLANTS – AN EPISODE IN MONTANE ECOLOGY

ARTHUR R. KRUCKEBERG, *Seattle, Washington*

Botanical science is notoriously short on rigorously defined laws. To speak of "the laws of physics" bothers no one but the modern physicist who is finding new uncertainties. But who ever heard of the laws of botany? The manifold interactions in complex living systems—especially at the ecological or community level—make a poor game out of predictability and defy the framing of immutable laws. Yet, the student of plant distribution can perceive some irregularities in the interplay between organisms and their environment. Even moderate probabilities may beguile the plant geographer into framing "principles." The so-called "Principles of Plant Distribution" (Cain 1944, Gleason and Cronquist 1964, Good 1964) are simply generalizations based on reasonable recurrent observations of similar causes producing similar effects. The first dictum says that the prime causal factor influencing the distribution of plant species is climate—overshadowing all other influences. A close second to the pervasive impact of climate is the *soil* or *edaphic factor*. All other influences: topography, past history, other organisms, disturbance, etc., are subordinate to climate and soil.

The soil as a regulator of distribution of plant species in space takes on special significance and fascination for the botanist working the country from the Rockies to the Pacific. The lavish diversity of geological formations and the intricate interdigitating and discontinuous patterns produce a welter of contrasting soil substrates for plant life. The effect of this rich variety on the flora is well known to veteran plant hunters. They learn to expect distinctive treasures where limestones outcrop in basalt, where serpentines border granite, wherever, in fact, the mountainous west is enriched by geological variety.

To put teeth into the above generalities, I want to particularize about a favorite domain of mine. The Wenatchee Mountains of central Washington are an exemplary microcosm in which to explore the complexities of edaphic influence on plant distribution. The boundaries of this mountainous geologic Eldorado are by no means clearly delimited. Only in the east does the high country abruptly halt in grand overlooks to the Columbia River. In all other compass directions, the Wenatchees merge with the Cascade Range in more or less subtle confluence. Yet as a substantial southeast-to-northwest-trending spur of the Cascades, the Wenatchee Mountains do have some definition—least of all geographically, but in generous display, geologically and botanically. My circumscription of the range goes something like this: the crest of the Cas-

cades to the west, the Entiat River valley to the north, the Columbia basin to the east, and a southern boundary at the upper Yakima River; this perimeter serves to "box in" the bulk of it.

In no other sector of the Washington Cascades do geology and botany put on such a wild and spectacular display. Zero in on the loftiest eminence of the Wenatchees and you begin a perilous trek down the needles and spires of the granite (granodiorite) of the massive Stuart Range. Go either north or south from Mount Stuart and the granodiorite repeatedly contacts the ultrabasic rocks (iron-and magnesium-rock peridotite and serpentine), sediments of the Swauk formation, or the sparkling schist of the Chiwaukum district.

But how does this intricate mosaic of rock types relate to the region's flora? Rocks weather through the erosive physical processes of freezing, wind and water scarification, and by biological etching of rock surface. The quality of the soils are in part determined by the chemical nature of the parent rock. A minute's diversion over the figures in the table below will show how greatly the soil chemical properties are influenced by their parent material:

Rock type of parent material	Habitat	Calcium and Magnesium Content*		
		Calcium	Magnesium	Ca:Mg ratio
Mixed alluvium	Agricultural lands, Sacramento Valley	63.0	15.0	4.2
Mixed alluvium	Experimental plots, Rothamstead, England	89.7	6.0	14.9
Granodiorite	Subalpine fir forest, Colchuck Lake, Wash.	0.62	0.08	7.7
Serpentine	Talus slope, Wenatchee Mts., Washington	0.25	3.37	0.67
Peridotite	Dwarfed conifers, Twin Sisters Mts., Wash.	1.62	6.86	0.24
Sandstone	Talus, Beverley Cr., Wenatchee Mts.	4.72	0.21	23.0

*Millequivalents per 100 grams of soil

First, compare the calcium and magnesium contents of good agricultural soils with those from high montane sites in Washington. Not only are the absolute amounts of the mineral nutrients much higher in the agricultural soils but they have a favorable calcium-to-magnesium ratio (greater than one). But the most startling deviations from normal mineral balances are seen in the soils derived from ultrabasic (iron-magnesium) rocks like serpentine, dunite, and peridotite. *A priori,* we might wonder if ordinary plants could ever grow on such anomalous and "sterile" stuff. In that expanse of ultrabasics from Ingalls Creek at the southeast foot of Mount Stuart all the way to the Cle Elum River, serpentine and peridotite soils dominate the landscape. If that stretch of rugged terrain were stretched out flat it would be an agricultural wasteland. Standing on end and thrust up into a mass of ridges, slopes and valleys it is still a vegatational "barren" in some places. I frequently encounter spots where the serpentine is so unstable and chemically so sterile that it supports little or no plant

Mt. Stuart (9470 feet) and an ultrabasic "barren" in the foreground
A. R. Kruckeberg

life. In other less extreme portions of the ultrabasic landscape there is indeed a flora—trees, often of "low site" quality, scattered shrubs, and a thin cover of herbaceous species. No forester would enthrall over the merchantable qualities of even the best of the forested serpentine slopes; they are wild, somber and elfin woods with ghostly skeletons of trees long since dead, making minor-key poetry of much of the landscape.

Nonetheless, the botanist delights in what he finds in the ultrabasic country. Even the most sterile slopes harbour rarities. A rather typical talus or scree tumbling down from the peridotite-serpentine cliffs above might support these treasures: *Douglasia dentata* var. *nivalis, Claytonia megarhiza* var. *nivalis, Eriogonum pyrolaefolium, Chaenactis thompsonii, Lewisia columbiana, L. tweedyi,* and *Ivesia tweedyi.* And then there would surely be the ever present ultrabasic twins: *Cheilanthes siliquosa* and *Polystichum mohrioides* var. *lemmonii.*

The last two plants loom large in my inventory of species addicted to life on the barren slopes of ferromagnesian outcrops (Kruckeberg 1964). As spore-producing ferns, of course, they have the best possible credentials for cross-country tourism. *C. siliquosa* ranges all the way from the Gaspé Peninsula in Quebec (and there on serpentine!) to Cypress Island in the San Juan Islands of Western Washington, and south to San Francisco Bay. The *Polystichum* is even more of a wanderer—bicontinental in range. The Pacific Northwest variety *lemmonii* has its nearest counterpart in Patagonia! But more startling—and intriguing—than the globe-trotting propensities of these two is their high faithfulness to ultrabasic rocks. I have rarely failed to turn them up on even the smallest serpentine-peridotite outcrop. To be sure, *Cheilanthes siliquosa* occasionally finds a home on some other substratum: basalt along Lake Cle Elum or rarely on the granitic talus of lofty Mount Stuart. Yet it is really at home in quantity and in luxuriance on that most sterile ferromagnesian stuff. The

other *Cheilanthes* in our Northwest flora, *C. gracillima,* is just as finicky—but in the other direction. It really avoids the ultrabasics like the plague. Time after time in the Wenatchees I have seen serpentine-peridotite abut some other formation and the two *Cheilanthes* remain faithful to their substrates, within feet of each other. The *Polystichum* is just as faithful to serpentine; however it is limited to vegetation zones from 3000 feet upwards to timberline. Its nearest counterpart to *C. gracillima* in avoiding serpentine is *P. scopulinum;* the latter is however not as intolerant of ultrabasic soils.

A list of the species that are largely restricted to serpentine in the Wenatchees is not overly impressive. Moreover a catalog of the total flora of ultrabasic soils includes many species that wander from rock type to rock type with a disconcerting lack of discrimination. Most of the region's conifers will grow on ultrabasics, albeit often stunted. Altitudinal limits for the evergreens do change though, as does the abundance of certain species. *Juniperus communis* occurs at much lower elevations and in abundance on serpentine. Lodgepole pine (*Pinus contorta latifolia*) is an ever-present tree member of the serpentine community—even performs as the timberline "krummholz" on the high Whatcom County dunite. The quickest summary of this communal mixture of faithful serpentine indicators and indiscriminate "soil-wanderers" is a partial list—forthwith:

Serpentine indicators	Soil-wanderers	Avoiders of serpentine
Cheilanthes siliquosa	All conifers	*Pachistima myrsinites*
Polystichum mohrioides lemmonii	*Eriogonum umbellatum*	*Penstemon fruticosus*
Poa curtifolia	*Arenaria capillaris*	*Ceanothus velutinus*
Eriogonum pyrolaefolium	*Sedum rupicolum*	(and many other shrubby
Polygonum newberryi	*Erysimum torulosum**	species)
Arenaria obtusiloba	*Heuchera cylindrica*	*Cheilanthes gracillima*
Claytonia megarhiza var. *nivalis*	*Lupinus laxiflorus*	*Cryptogramma crispa*
Anemone drummondii	*Lomatium brandegei*	*Woodsia scopulina*
Ivesia tweedyi	*Phlox diffusa*	*Luetkea pectinata*
Lomatium cuspidatum	*Gilia aggregata*	*Epilobium alpinum*
Douglasia dentata nivalis	*Galium multiflorum*	*Phacelia hastata* var. *leptosepala*
Cryptantha thompsonii	*Achillea lanulosa**	*Monardella odoratissima*
Castilleja elmeri	*Arnica cordifolia*	*Penstemon davidsonii*
Chaenactis thompsonii	*Hieracium albiflorum**	*P. rupicola*
	Senecio integerrimus	*P. tolmiei*
	*S. pauperculus**	*Campanula rotundifolia*
		Artemisia michauxiana
		Arnica parryi
		Anaphalis margaritacea
		Balsamorhiza sagittata
		Hieracium albertinum
		H. gracile
		Luina hypoleuca
		L. nardosmia

Polystichum mohrioides var. *lemmonii* on peridotite

A. R. Kruckeberg

A remarkable feature of some of the "soil-wanderers" (especially those marked *) is their hereditary response to extreme changes in soil type. One and the same species will have races possessing genetically controlled tolerance for particular substrates. For instance, the wide-ranging and ubiquitous yarrow (*Achillea lanulosa*) is clearly differentiated into serpentine-tolerant and serpentine-intolerant races. Such hereditarily controlled differences in tolerances to a variety of environmental influences is common in most plant and animal species with extensive distributional ranges. So universal is this racial differentiation within species that it has generated a whole subscience—*genecology*. Its essence says that species which demonstrate varying intolerances to climate, soil, etc., are *ecotypically*† *differentiated*. Serpentine races of *Achillea* thus would be *ecotypic responses* to a particular soil condition. The significance of genecology for horticulture and forestry hardly needs elaboration.

The presence of a characteristic serpentine flora surely manifests the rigorous selective nature of soil constitution. But what of that portion of the Wenatchee flora that most decisively and clearly fails to occur on serpentine however intimately it may border that "no-man's-land"? A host of species simply will not grow on ultrabasics though by sheer proximity they could do so. Notable among the avoiders of serpentine are all the Penstemons of the Wenatchees—in fact, the only "scroph" that makes a go of it in a big way on serpentine is *Castilleja elmeri*—a beautiful cream yellow paintbrush; the

†Ecotype: The genetic response of a species to some selective factor in its environment. For example, a limestone race or ecotype, a sand dune race or ecotype, etc. of any wide-ranging species.

A serpentine "barren" above the N. Fork Teanaway River
A. R. Kruckeberg

Pedicularis species may be found on ultrabasics but the wet meadow habitat is the compensating factor. Because the list of avoiders is large (see above), I would offer only one or two intriguing addenda. Among the impressive number of shrubs that dislike ultrabasics, none is more emphatic in its intolerance than *Pachistima myrsinites* (Oregon Box). *Cheilanthes gracillima* has other fern compatriots, *Cryptogramma crispa* and *Woodsia scopulina*—that rarely, if ever, step into the high magnesium "trap."

The causal basis of soil preferences, of restrictions to substrates, of well-developed racial differences in tolerance, are largely bound up in the inscrutable past history of evolving floras. As so many of the faithful serpentine indicators have no close relatives on nearby "normal" substrates, the search for origins of the ultrabasic way of life is thrust back into geologic past times. This much we do know. Plant species have evolved genetic tolerance to distinct soil regimes. Perhaps the differentiation into tolerant and intolerant races of the soil-wandering species like *Achillea lanulosa* and *Fragaria virginiana* are infantile steps in the development of species differences. Whatever the origin of the flora on serpentine, certainly the vast and panoramic mosaic of geologically distinct rock formations has set off a minor evolutionary spree in the high wilderness country of the Wenatchee Mountains.

Literature Cited*

Cain, S. A. 1944. Foundations of Plant Geography. Harper & Bros., New York. 556 pp.
Gleason, H. A. & Cronquist 1964. Natural Geography of Plants. Columbia University Press, New York. 420 pp. Ill.
Good, R. 1964. The Geography of the Flowering Plants. Longmans, London. Third Edition, 518 pp.
Kruckeberg, A. R. 1964. Ferns associated with ultramafic rocks in the Pacific Northwest. Amer. Fern Jour. **54**: 113-126.

*The first three are scholarly works on plant distribution in general. The last summarizes the serpentine fern story.

SILENE HOOKERI

LAWRENCE CROCKER, *Medford, Oregon*

Silene hookeri, when seen growing at its best, is a plant to excite the interest even of the garden club grower of roses and dahlias. Its botanical boundaries extend from Mendocino County in California well into Western Oregon, and it reaches its maximum spread along the lower tributaries of the Rogue River in Southern Oregon. Open woodlands of *Pinus ponderosa* where there is a considerable amount of filtered sunlight, or open grassy roadsides provide the best conditions for the satisfaction of this plant's needs. The elevation of land on which it grows is usually between 1000 and 2000 feet.

The growing habits of this plant will surprise one seeing it for the first time. A thick tap root, often over a foot in length, sends slender rootstocks just beneath ground surface, forming a circle a foot across. These side shoots are often transplanted by beginners with the mistaken idea that they will proceed to grow. On occasion these lateral shoots do take root, but only when still attached to the tap root. In this manner a large colony of one clone frequently is formed. Gray-green leaves, two inches long, rising from the ground from three to five inches show a heavy pubescence. Variation of flower form is great—from those laciniated, or cleft almost to the base of the corolla, to those merely deeply lobed. While normally the flowers are about one inch across, it is not unusual to see some twice that size. Color variation provide exciting tones of pink, salmon and rose (some are white), the variation being regulated somewhat by the amount of sunshine reaching them. Colors that are deep in partial shade may fade to rich pink in the open. The effect given by a group of these plants is not one of massive ground color, but rather one of brilliant spots scattered rather evenly on the surface.

Beginning in late May and extending well into June is the time *Silene hookeri* puts on its showy display. In July the puffy seed pods begin to ripen with several radish-sized seeds in each pod.

To assure success in the garden, one should use a rather gritty, well-drained soil with a light mulch of pine needles added as a cover. Like so many of our Pacific States natives, *S. hookeri* needs moisture well into May, followed by a baking period reaching into September. However, in the writer's garden, this plant has shown no displeasure from an occasional summer soaking. Summer temperatures over 100 degrees are not unusual here, but our evenings are tempered by lows in the fifties. On rare occasions zero winters have been our lot but this deep-rooted plant has shown no ill effects. Our soils are on the neutral side as far as acidity is concerned. It has been my observation that it thrives in red soils where a high mineral content is found. In fact, the rocky red soils of the Illinois valley seem ideal for this as well as numerous other native Oregon plants.

At blooming time, *Silene hookeri* seldom has floral competition, but plants blooming at an earlier time include *Erythronium, Calochortus, Brodiaea* and *Dodecatheon.* As flowering companion in my garden I find *Phlox adsurgens* with its similar coloring and growing habit to be ideal. To add variety, airiness, and leaf contrast *Lewisia cotyledon* cannot be surpassed. Of course, our dwarf ferns such as *Cheilanthes gracillima, Pellaea densa,* and *P. brachyptera* provide a foil for all these plants.

A full-grown plant of *Silene hookeri* is by no means easy to transplant, because of the large root system in the hard, dry soil. If they can be carefully removed without injuring the roots, transplanting in the fall can be successful.

It is best to grow young plants from seed as they germinate readily and may be moved at any time without injury. Always be certain that silenes have room to spread, since they resent crowded conditions.

In the Umpqua River valley of Oregon is found a closely allied species, *Silene ingramii,* by some botanists considered merely a variant of *S. hookeri.* In most respects *S. ingramii* resembles its near relative. It is, however, somewhat more compact and more floriferous. Individual flowers are constant in size and form—lobed less deeply than *S. hookeri.* The color is a glowing cherry red of great beauty. It is a fast spreader and blooms more heavily than other silenes.

TWO PLANTS TO WATCH

JOHN P. OSBORNE, *Westport, Conn.*

SUCCESS WITH *PYXIDANTHERA BREVIFOLIA*—A small plant of *Pyxidanthera brevifolia* was given to me in May, 1964 which had been collected in North Carolina. It was planted in my "Pine barrens" garden in half shade, next to some plants of P. barbulata, in soil which had been brought up from the barrens. This soil is a combination of fine sand (granite, I believe), yellow clay and a small amount of humus.

This portion of the garden has what I optimistically call underground watering. A couple of years ago, I dug a bit of the garden down to a depth of about two feet, threw in some old rotted logs and coarse sphagnum moss, and ran in some one-inch plastic tubing, which connects with the water supply from the house. From the main tubing connected by valves artfully hidden under rocks or behind small shrubs, five or six feeder lines branch out for six feet or so throughout the garden. All were punctured at intervals with small holes. The excavation was then filled with soil brought from the Pine barrens.

The Pine barren plants that I grow there, *Pyxidanthera barbulata, Hudsonia, Corema, Epigaea repens, Leiophyllum, Kalmia angustifolia, Gentiana porphyrio,* etc., have thrived, but I sometimes wonder why.

At first, part of the garden became a swamp and small geysers would suddenly appear. The artfully hidden valves were soon covered with debris and can only be found by poking around with a stick until metal is hit. I finally got it under some kind of control, and while I suspect that now most of the holes in the tubing are clogged, a certain amount of moisture is maintained.

At any rate, the *Pyxidanthera brevifolia* seemed happy from the start and by the end of the summer had grown to about twice its original size. During the winter I mulched it lightly with pine needles and now in late April it is coloring up and tiny buds are beginning to appear. I have no doubt that the combination of moisture, sandy acid soil and half shade is the answer.

POTENTILLA TRIDENTATA MINOR—North Atlantic Region Plant of the Year—Almost everyone is familiar with *Potentilla tridentata.* It is a high mountain plant about one foot high appearing in rocky ground in the East from Canada to Georgia. In the garden it is very easy, doing well in relatively poor soil, in either full sun or partial shade.

As an individual plant, I have never found it too interesting, but a dozen or so massed together can be very attractive with their dark glossy leaves, midsummer white flowers and fine fall coloring.

Five years ago, a wholesale grower found one plant of a dwarf form among seedlings of the normal plant. It is of interest that of the many thousand seedlings that have since been grown each year, this dwarf form has never again appeared.

The original dwarf plant was reproduced by cuttings until two years ago when it was found to come true from seed. This little plant is half the size of the normal plant in height and leaf size, while the flower remains close to normal, and the whole plant has a very attractive, well-balanced appearance.

Potentilla tridentata minor is one of the few good ground covers that does well in full sun, and it will take extreme drought. It should remain a rarity for some years as its rate of germination and growth is much slower than that of the normal plant.

SHOWS AND MEETINGS

The International Flower Show, held at the New York Coliseum from March 6 to 14, 1965, was given over to botanical displays large and small. The largest displays are usually extensive gardens covering many thousands of square feet. Our American Rock Garden Society display, in contrast to these, was a table top garden, five by eight feet, set into a six-inch deep frame. The attention it received was out of all proportion to its size. Gardeners were fascinated by all the variety, while thousands of other show spectators were intrigued by the tiny plants.

This charming little garden contained ninety-six species and named varieties, all donated by our members. Some had started setting up at home by creating little composite settings in feather rock. Most others brought plants in two- or three-inch pots. Our rack, hinged to make it portable, had a plastic liner, and was filled with about five inches of Perlite covered with an inch of Hyper-Humus, and topped with tiny stone. All pots were plunged into this so that no pots were visible.

Mrs. H. Lincoln Foster was the creative artist who put it together. "Designed" would be the wrong word, as we did not know until a few hours before show opening how many or what plants we would receive, or how many would be in bloom. The end result, however, was wonderful. Many beautiful saxifrages were in full flower, as were drabas, primulas, aubretias and others. A few lovely specimens in rock were set singly on another table.

One of the most heart-warming features of the show was to find so many loyal members who took turns most willingly in manning the booth, in three-hour shifts. Thirty-eight enthusiasts sold our *Bulletins* and the Cornell Rock Garden pamphlet, gave out lists of rock garden nurserymen, suggested bibliographies, and most important of all, application blanks for membership in the ARGS. Through this ten-day endeavor, we acquired twenty-four new members. All told, it was a very successful venture from which we all learned a great deal, and we are all convinced that the work which went into our exhibit was well worth while.

IRENE HOCHHEIMER
Co-chairman with TIMMY FOSTER

On Saturday, May 8, the Delaware Valley Section of the American Rock Garden Society had a wonderful day. We visited the Chester County gardens of Mrs. George E. De Coursey, Mr. and Mrs. George A. Reed, Mr. and Mrs. Lee M. Raden, and the Swiss Pines Arboretum. Approximately sixty people were on hand for all the fun, and we owe special thanks to Mrs. De Coursey, Mr. and Mrs. Reed, and to Hans Daniels, Director of the Swiss Pines, for his wonderful talk on Japanese and Oriental gardens.

At the end of the day we held a plant sale with superb material supplied by Mr. Rex Murfitt of Stonecrop nurseries. At times it looked like the dollar sale at a bargain basement, but all retained their good humor as there was plenty for

all. Plans are now under way for an early fall meeting and visits to three or four gardens in Bucks County.

LEE M. RADEN
Chairman, Delaware Valley Section

The Detroit Flower Show, held early in March of this year, was not an unqualified success. In spite of the fortitude shown by such ARGS members as Mrs. Harry L. Armiger, Mrs. David R. Blake, Mr. Harry Elkins, and Mr. Robert Goplerud, all of Michigan, who exhibited a rock garden there in the name of our Society, they could not cope with the weather. It not only did not cooperate, it was downright antagonistic. One is reminded of a like situation last year when the Mid-western Unit attempted to hold its first meeting in Omaha, Nebraska. There they braved cold, wind, even tornadoes and yet they held the meeting. In Detroit, the weather was the chief culprit, though there were difficulties of human origin, as well. Still the show was held and a number of people were exposed to rock gardening, and may sometime find themselves being welcomed as new members. We salute these doughty enthusiasts who carry out their scheduled activities in spite of almost insurmountable obstacles.

A WESTERN ROCK GARDEN IN MISSOULA

KLAUS H. LACKSCHEWITZ, *Missoula, Montana*

This title sounds rather ambitious. My rock garden is but a small, artificial hill in our backyard, covering altogether not more than an area of twelve by fifteen feet, and built up to a maximum height of three and one half feet above the level of the lawn. So—naming it a rock garden is a justifiable concession, whereas the attribute is genuine and indisputable, since the location is western and all the plants growing there are Westerners and collected on trips made out of Missoula. None of the plants are raised from seeds or cuttings; none of them are bought either.

The town of Missoula is stretched out at the entrance of a wide valley, 3,200 ft. above sea level. From the gardener's point of view, the climate is trying. Temperatures in winter may fall below -25 degrees, and during the hot months we frequently experience over 90 degrees of dry heat. Only the nights remain beneficially cool and dewy and that makes the most important difference between ours and the climate of the Eastern coastal areas from where I came to this Western Montana town.

The soil in my garden is a moderately heavy loam. The subsoil, brought up by digging a dry well, clayey and alkaline, pH 8. Plants requiring definitely acid soil and moist, woodsy growing conditions, I cannot grow here—up to this time. Not all the plants I grow are mentioned here. I have made initial mistakes and have not had time enough to correct them. Some plants I eliminated for various reasons, mostly for making too high or too lush growth after having been taken into the garden. Now and then, a single plant of one species, as for instance *Lesquerella alpina* or *Hypericum scouleri,* pleases me, but I do not feel the need for more of its kind here.

I have tried to remain aware of the well-known facts, that if our climatic and floral limitations offer us three months in the year with a wealth of flowers against nine months with their foliage only, the quality of the latter, as well as the selection of rocks and pebbles, is of paramount importance. Furthermore, a small place makes it more difficult to show off the shining flowers of a plant —and later to hide the unsightly dying foliage of the same. Spring is always the time of flowers in the rock gardens, and this is quite pronounced in a western garden.

We have but very few late flowering dwarf plants lending color to the months of summer and fall. The dark blue *Penstemon diphyllus,* the only one of its genus flowering after July 1st, is almost too tall for a rock garden, but still, it seems to be indispensable to me. *Liatris punctata* and a dwarf goldenrod are the right size but the color of the flowers is not particularly appealing to me. Besides, the foliage of neither plant amounts to much. The many Asters and Eriogonums flowering into early fall in this habitat belong to the prolonged spring flora when made to grow and flower at least 4,000 feet lower. So do many others. But I found that *Oenothera caespitosa,* when I removed all the flowers right after their folding up again, kept reblooming into September. One single blossom of it, in all its splendor has, indeed, the power to lighten up any dormant side of the garden.

The sequence I follow in introducing the species growing for me is unorthodox and free of any botanical prejudice. It is that of a gardener for whom, relying on his own observation, their appearance and behavior postulates their order of importance.

This little hill in back of our house, preserved exclusively for natives, imitates in shape and soil condition rather the dry foothills of our country. It is significantly crowned by a thriving sagebush—*Artemisia tridentata.* There it sometimes may seem to be too bulky, but it certainly looks good the year round, and very much so, when snow covers everything for three months. It readily takes to pruning and shaping and could replace for us here all kinds of other silvery southerners. It is not discriminating as to the soil (also it likes lime) and will be used, I think, in future landscaping much more than hitherto. Seedlings, collected in the hills, take readily and grow fast. The foliage is so soft during cold weather, that the snow never accumulates on it, as it does on stiff-needled evergreens. It does look very attractive in larger plantings, used together with some of the low-growing junipers. On this small hill it will be forever the highest point allowed.

The mountain mahogany, *Cercocarpus ledifolius,* from the Bitterroot Valley is there, too. This is, when mature, an extremely picturesque and bizarre evergreen bush, so characteristic of many rugged valleys here—but how slow is its growth! The person planting it as a seedling will never live long enough to see it in its full beauty. This rare bluish-grey-green, fine foliage above twisted and gnarled branches is much enhanced by the reddish or yellow shades of the rocks. Besides, it is not easy to collect, as young plants are hard to find, for some reason. A dwarf form of *Potentilla fruticosa,* given to me by Mr. Frank Rose, keeps properly its height of less than one foot; flowers, grows, and spreads out, thus behaving in every way as a good rock garden plant should. Not being evergreen, it holds its leaves well into late fall, and its popping leafbuds are a delight at a time when hardly any other life is noticeable.

The well-known *Arctostaphylos uva-ursi,* called "Kinnikinnick" here, does fully what one would expect it to do. It grows rampant, may the soil be alkaline or acid, and at the same time, the foliage glows in its wintery sun-tan, a much enlivening wine-red in the many different grays and greens. In other years, after less severe winters, some of the top leaves of *Mahonia repens* furnished a bright red spot in the front of the hill. But too much was the sudden -30 degree temperature last December, and all the exposed leaves are burnt brown, as they are on the surrounding open hillsides this spring. But not a single branch seems to have succumbed. The thick, swelling buds, bearing the flower panicles, look as promising as possible. In the dormant stage, this dwarf Mahonia can easily be taken from the wilds and transplanted. It stands a good deal of mistreatment and is not particular as to the soil and exposure, provided the drainage is

Plants from left to right—*Phlox kelseyi missoulensis, Oenothera caespitosa, Townsendia exscapa,* and *Phlox hoodii*
Ingvard Eide

adequate. Too bad that its usual behavior restricts its distribution and makes it much better suited for foreground planting in informal settings, than for use as a groundcover. As soon as it thrives somewhere, runners dash out towards all sides but the one where other Mahonia roots are growing, and little leafy bushes keep popping up where no one wanted to see them. You take a spade—chop and clear the runners out—and your original plant rises up, fattens, thickens, and starts developing a regular little trunk, flowers abundantly, and makes you wonder whether you have one of the several much-praised, hardy, dwarf "hybrids" of *Mahonia Aquifolium.* Most of the uniform and thick groves of our Mahonia one sees at the roadsides are caused either by a good burn, or by a sharp bulldozer blade—common events of our times.

Juniperus communis montana (or "depressa") has a striking pattern of growth. Despite its unsightly, brownish winter color, it is still a good evergreen and at least as good as the Thuja and Arbor-vitae kinds here in the north. How easily is a single plant not noticed at all, and what a unique beauty is expressed by a closely-grown multitude of it. It has no fitting place whatsoever in my small garden—still, I keep shifting a few small bushes around, because I just like it so much. To the other woody plants in the garden belongs *Dryas octopetala,* which, like *Dryas drummondii,* has just survived its first winter. Both should succeed with me, as they do in other gardens here. Our *Dryas octopetala* from the high mountains is considerably smaller, with finer foliage and shorter flowering stems than the type so well known in rock gardens.

Penstemon fruticosus, the only good, shrubby, evergreen Penstemon that I know, has done well for me. Since it is mostly under a deep, protective snow

cover in its natural habitat, it tends to burn its upper leaves in winter. The foliage has a bronzy-red winter color. The large, purple flowers, borne profusely, show a striking luminescence. Like most Penstemons, it varies in growth type and color of the flowers. One should select superior plants and propagate by cuttings.

Paronychia sessiliflora is only a tiny shrublet, not higher nor wider growing than the carpeting Phloxes. The ones I have were planted in the first fall and are doing surprisingly well. No visible flowers at all, but the fine foliage is attractive, changing from bluish-green to reddish-brown.

A plant which should be mentioned here with the woody ones is *Eriogonum subalpinum,* the wild buckwheat. Not only the base of the crown is woody, but also the creeping branchlets, closely hugging the ground. This is a fine plant, the wide, cream-colored umbels growing just a little bit too tall for my rocky hill. But again, it is the foliage which counts more than the flowers and looks good spread over the gravel, featuring here a wintery grayish-purple blanket—a natural neighbor of *Douglasia montana,* the Townsendias, Phloxes and prickly pears. The leaves are mossy green with silvery reverse in summer and show a lot of red from the time the flowers fade. The color of the flowering umbels changes from greenish-white in buds to sometimes cinnamon brown and enchanting reddish and pinkish hues in the different stages of the ripening process. These variations are caused by different exposure and, perhaps, the soil. In a border of tall perennials, it would ask for the place of *Achillea millefolium* in the foreground, being the much more distinguished plant. It has, like all Eriogonums, a taproot reaching deep into the ground. But young plants are not difficult to establish. If the flowers are taken, they preserve their original color very well and make fine "everlastings" in dry bouquets, which would be used more often, if they were better known. This later is valid in regard to all the Eriogonums I know.

Now come the largest group of all, the evergreen (or gray) tufts, cushions or blankets—the genuine rock garden plants, mostly called "alpines"—whether they are true alpines or not at all. If someone would ask me to name the best of our local plants of this group, I certainly would answer, *"Douglasia montana."* So far, it is the only member of its genus for us here, but we collect two types, different in appearance and habitat. The one, well known from many places in our dry hills, does extremely well and seeds itself freely on my little hill. For me, it is the most important spring flower and truly a rock garden plant of supreme value. It meets all the requirements: such beauty and multitude of flowers, long flowering period (to one month), attractiveness of the foliage, longevity, and it is easy to handle. In the future, I will try to propagate the best flower shades. I have one pure white, but the type's pleasant pink varies from light pink to almost red.

The other one, from an altitude of eight to ten thousand feet in the Bitterroots—a real alpine—is a true jewel at its home above timberline, where it grows and flowers together with *Eritrichium elongatum* and the Drabas. A tiny bun of dark emerald moss, covered with a multitude of deep pink, wee little flowers has not done well for me and has behaved much like an Eritrichium. I am determined to treat it like an Eritrichium, too. That is, I will try it on different screes—try it again and again in all reasonable ways.

All the members of the large genus of Phloxes are thriving in my garden. Mostly they were planted as small plants. I like to take these when they open their first few flowers, so I can choose the color. But some are collected as older specimens, their crown before planting severely cut back, and these succeeded equally well, as did some tiny seedlings, planted in late fall. In our immediate area we collect four species of "carpet" Phloxes. All are delightfully

Douglasia montana in full flower Ingvard Eide

different, and for the gardener's eye, easy to distinguish from a distance by their foliage. Planted in close groups, their foliage lends life and charm to their place throughout the year. *Phlox kelseyi* var. *missoulensis* has the largest and the stiffest, needle-like foliage, feeling prickly to the touch. The color changes from almost gray in winter to fresh green at the flowering time. Looking for the first time at it, I suspected a Sedum from the arid plains. The flowers are the largest of our "Moss Phloxes", mostly pure white, some with a blue or purplish cast at the fringes. This Phlox is our particular favorite here and does as well on terraces as on vertical walls.

Phlox rigida has almost the same flowers, but a very different growth. In fact, it is not a true "carpet" Phlox, as it grows upright, a little bush, sometimes to six inches high. Being extremely pretty at its flowering time, this one disappointed me during the long, dormant season, looking rather scraggly and "dead" in winter. Dead branches appear in the spring in my garden, as they do in the hills, and must be taken away. I have most successfully trimmed back this one for two years. After that time, there was too much dead "wood." I grew impatient and did what one does never often enough—I threw it out and replanted some seedlings. This plant seems to be quite popular and easy in the coastal West. Its common name is "Sandhill Phlox." Mr. Thurman, in his catalog, says that it reacts, regarding the color of the flowers, as promptly to the pH

of different soils, as, for instance, the "blue" Hydrangea does. This sounds very credible, and I am going to try it out.

We have one other Phlox, one of the most controversial for the botanists, *Phlox hoodii,* of which at least three different types, recognized subspecies or not, flourish on the hill. The plant we collect on acid soils in the Lolo Valley, everywhere in the Bitterroots, and in adjoining Idaho has the most truly "moss-like" appearance in growth and the pleasant green color of its foliage, preserved well throughout the year. One would recognize the flowerless plants at once as typical Phloxes. The flowers are large, mostly white, sometimes with a purplish or blue cast, now and then of a striking "inky" blue. The same species, collected only above timberline, bears another form of it. But the foliage has an outspoken light gray-green color. On the open, dry hills east of Missoula grows a third form we must call *Phlox hoodii,* too. The foliage appears finer and shorter, and has a bluish-green, dull color. Many plants have lilac to pinkish colored flowers and grow next to others showing white or purple flowers. But this is, before thorough investigation, still not a proof against their ability to change color—eventually.

I can make the following statement; no Phlox, in the course of two to four years, has changed the characteristics of its foliage after having been transplanted into my garden. Some have still very different colored flowers—white, purplish, lilac, and pinkish. But I am not able to determine which ones were the "very pink" or "very bluish" ones I meant to have selected once. One single plant of *Phlox alyssifolia,* given me four years ago by Frank Rose as a pink flowering one and collected east of the divide, showed still pretty pink flowers last year.

The Phlox with the most admirable and finest foliage is surely *Phlox muscoides* (formerly "bryoides"). The foliage color is a dull to vivid blue-green. The branches make a splendid carpeting, hugging the ground closely. They show a pattern very different from all other Phloxes. I still remember how, seeing it for the first time and in its dormant stage, I asked whether this was the "famous Douglasia." Needless to say, I had never seen a *Douglasia.* I have a carpet of plants coming now into their fourth spring and they have been a delight to me ever since they were planted. This plant is the one Phlox most often taken into local gardens. Several times I have been asked whether I knew it, and I remember being told that, despite its beautiful foliage, the flowers were disappointing. Not at all so to my own feeling. The myriad of the tiniest white flowers with brownish stamens covering the whole plant have much appeal for me. Even though its flowering time is shorter than that of our other Phloxes, this one at least is a first grade foliage plant. I have groups of Phloxes planted in all exposures—on the east, north, and west slopes of the hill. And they do equally well on all sides.

(To Be Continued)

INTERCHANGE

Pinckneya pubens—Mr. Will C. Curtis, Garden In The Woods, South Sudbury, Mass., has some answers for Maj. Gen. D. M. Murray-Lyon, Pitlochry, Scotland, whose questions appeared in the April *Bulletin.* Mr. Curtis says that on page 2636 Bailey's *Cyclopedia of Horticulture* devotes two quite lengthy paragraphs to *Pinckneya pubens,* and that Small describes it botanically on page 1252 of his *Manual of the Southern Flora,* with words and pictures on page 876 mentioning *Franklinia* as an accompanying plant in the wild. Of his own experience with *P. pubens,* Mr. Curtis writes, "We had it at Garden In The Woods some years ago, planted in well-drained land under hemlocks where it failed to survive the first winter, although

Franklinia is relatively hardy here. I've a feeling if kept in our pit for a few years until thoroughly established it might survive. If and when seed can be obtained, I shall try again.

Pyxidanthera barbulata—Difficult or Docile?—Now comes Mr. G. G. Nearing, Ramsey, N. J., greatly esteemed former editor of the ARGS *Bulletin,* who after reading about *Pyxidanthera barbulata* in Interchange (*Bulletin* of April 1965), calls attention to his own article, "Moving a Famous Miff", in the July-August, 1951 *Bulletin.* The Interchange item has quoted from a gardening book published in 1871 which listed *P. barbulata,* from the Pine barrens of New Jersey, as a plant of easy culture for window boxes together with other plants that are still known as "easy." Then, eighty years later, Mr. Nearing writes of it as a "famous miff." Since then the legend of miffiness has been maintained, even intensified, with almost every reference to it. What happened in those eighty years? Are gardeners less apt now than eighty years ago? This would be unthinkable. Have the requirements of the plant changed? Hardly enough to jump from "easy" to "miffiness" in eighty years—a short time in a plant's evolution. Was the author of the "window box" article mistaken? Possibly. Or, were window boxes in those days fearfully wrought, with bogs in the bottom, New Jersey sand on top, and needle-bearing trees overhead to furnish perpetual mulch? Evidently not, or such plants as Basket of Gold, Daisies, and Summer Snow would have had a hard time of it. What did happen? Perhaps some enterprising gardener with a bent for research would essay to scan botanical literature from 1871 to 1951. In so doing, he might discover that the reputation of *Pyxidanthera barbulata* for miffiness is not well-founded. With a history of its culture from 1871 to 1951, the mystery of the plant's seemingly radical change in temperament may be cleared up, and gardeners everywhere may be encouraged to try this charming plant in their gardens with some hope of success. Such research might, as a by-product, unearth nuggets of information which would help gardeners with other problems, as well, including ways to cope with the almost extinct *Pyxidanthera brevifolia,* now starting its come-back at the hands of our Eastern gardeners. Who will undertake this interesting and perhaps rewarding task? Mr. Nearing, possibly?

Gaylussacia brachycera or *Vaccinium vitis-idaea?*—Mrs. Grace F. Dowbridge, Springvale, Maine, is grateful to Dr. Edgar T. Wherry for giving her the answer to her puzzle. She wrote, "I have long intended to send in a report following Dr. Wherry's correction of my listing of *Gaylussacia brachycera* with red berries instead of the correct bluish ones. (*Bulletin* of January, 1962). After reading his note, I watched the colony very closely for berries the following season, and finally found a very few developing the proper dull purplish and inconspicuous berries. There is also a good patch of *Vaccinium vitis-idaea minor* here, entirely distinct from *Gaylussacia brachycera,* lower, more compact in growth, with darker foliage. That left me with the puzzle of the plants in my former garden which had produced beautiful red berries quiet profusely. The foliage had been identified with that of the colony here, so I hadn't moved any of it. By elimination, those plants in my former garden must have been the taller European *Vaccinium-vitis-idaea.* Not only one, but two different plants of this taller *Vaccinium* had been given me, both from expert botanical gardeners as *Gaylussacia.* Apparently the young plants of these two are so nearly identical in appearance as to fool even the experts." Have others been puzzled in the same way?

Eastern plant information wanted—Mrs. Sallie Allen, Seattle, says that we have

been hearing a great deal about Western native plant material in recent *Bulletins,* and makes this request, "May we have some articles on some of the desirable members of the *Ericaceae* family native to the East? Northeastern United States is the southernmost limit of *Rhododendron lapponicum, Cassiope hypnoides,* and *Phyllodoce caerulea;* surely plants from there would be more amenable to cultivation than those from northern Norway and other such northerly stiuations. Little has been written, and nursery sources of this plant material are unknown. Can they be grown successfully?" She continues, "We have been able to locate *Gaylussacia brachycera,* and delight in growing it, but what of *G. baccata, G. frondosa,* and *G. ursina?"* Then she adds, "The comments, discussion, and information brought forth in the pursuit of *Pyxidanthera brevifolia* have been most interesting and helpful. Could we hear from our ARGS members about another member of the *Diapensiacaea* family, *Diapensia lapponica?* It would seem to have all the attributes of a fine rock garden subject; neat evergreen cushions and lovely flowers."

Campanula isophylla—The editor has always been told that this large-flowered campanula was not considered hardy in the Puget Sound area. This last winter, three young plants survived five degree above temperature without protection of any kind, and are today healthy and growing. Such a cold snap, almost unknown here, was brought about by a chill wind from the polar cap, which swooped down on the Port Townsend area without warning. That *Campanula isophylla,* directly in the path of such a frigid gale, emerged unscathed should be proof of hardiness, for this area, at least.

Germination of seeds—Mr. J. P. Zollinger writes, "Mr. Fuller's suggestion in the January *Bulletin* regarding an ARGS project of gathering information on the germination of seeds is more than a worthwhile one. This is probably the side of rock gardening which has been most systematically neglected. The project would be especially meritorious if it went beyond our native wild flowers and were extended to all the more difficult plants suitable for a rock garden.

"If it really gets under way, it will, though, prove a difficult undertaking. Apart from ARGS *Bulletin* Vol. 16 No. 1, (January, 1958), which is almost entirely devoted to propagation and contains some specific references, I have come across only two references to botanical works devoted to the subject. I give them here for what they may be worth to anyone. *"Plants and Gardens* (Brooklyn Botanic Garden Record) New Series, Vol 8, No. 2, contains a resume of research work by Lela N. Barton and Eltora M. Schroeder in *Contributions of the Boyce Thompson Institute,* Vol. 10, p. 235ff. The above number of *Plants and Gardens* is available as *Handbook* No. 10, 'Rock Gardens' for $1.00 from the Brooklyn Botanic Garden, 1000 Washington Ave., Brooklyn, N. Y. 11225. The condensed information on seed germination it contains may be welcome to some beginners.

"Cl. Favarger, *Flore et Vegetation des Alpes,* Vol. 1, p. 50 (Delachaux & Niestle, Neuchatel, Switzerland), refers to the work of almost twenty years of a German botanist, Kinzel, published under the title, *Frost und Licht als beeinflussends Krafte bei der Samenkeimung* (Frost and Light as Factors in the Germination of Seeds) Stuttgart 1913-1920. Since this reference is contained in one of the modern European classics on alpines, one suspects Kinzel's work to contain a good deal of information which might be of value to rock gardeners.

"The Boyce Thompson Institute publication should be available in a number of good college and university libraries. The Kinzel publications are another matter. They are probably spread over a number of volumes of a German

botanical journal. However, even these might be on the shelves of some university libraries and those of our members who are connected with institutions of higher learning might be able to locate them with the aid of abstracts, lists, and indices. In general, if the project ever gets under way, the cooperation of some of the professional botanists among our members would be most welcome."

In closing Mr. Zollinger states that he is writing to express his approval of Mr. Fuller's suggestion and to encourage others to come forth with theirs. He thinks, however, that there should be some preliminary discussion of the project before the ARGS make it an official undertaking.

Tufa Source for New Yorkers—Mrs. Stanley Krasner, Pleasantville, N. Y., has this to say about tufa, "Last week end we discovered a wonderful source of 'tufa' in the central New York region and we thought it might interest members in the northeastern section of the country. It is easily found on Route 51 which is not far from the Number 30 interchange on the N. Y. Thruway at Herkimer. The area is known as Ilion Gorge, and there is a woman there who owns a mountain of tufa and many springs. Her name is Chaya and no one could miss her large sign of 'Garden Rocks for Sale'. Her charges are very moderate." This may be good news to many members.

A Garden Description—Mrs. Sidney H. Baylor, Johnson, Vermont, writes as follows in describing the garden of Mr. George Schenk of Bothell, Wash., "I visited his garden when I was in Seattle in 1962. It is without doubt the most authentically built garden I have ever seen. On a steep hillside, with snow-covered mountains in the distance, one feels as though one were walking along an upper alpine ledge. The windblown evergreens, brought from near timberline, shield the plants that grow between rock crevices in some places and spread over rocks in others, and are so natural that it does not appear that human hands had planted them."

PACIFIC IRISES IN GARDENS

ROY DAVIDSON, *Seattle, Washington*

Prompted by Mrs. Klaber's and Mr. Sutton's remarks concerning their experiences with the Pacific irises *(Bulletin* of January, 1965), I would like to further report experiences with some of the named forms (clones). But first some words and experiences on "time vs. conditions" regarding division and transplantation. While irises are said to be "easy from seed", at least here on the Pacific slope, perpetuation of these selected superior clones is assured only by division, of course, and is certainly worth the time and trouble.

Echoing Mrs. English's advice, as quoted by Mr. Sutton, do not divide to single "fingers" (or toes?) of the tiny rhizomes of such as *Iris tenax* and *I. innominata,* although the husky-rhizomed *I. munzii* and *I. douglasiana* may be more safely broken down to single growths. Food stored in the gnarled and knotted back portions of the older rhizome is quite necessary for the quick growth of the sturdy new roots essential to the successful establishment of divisions. Likewise, leave as much of the foliage as possible to manufacture food. I have learned through the bitter experience of losing choicest plants, *never* to lift an entire clump, but to take divisions from the perimeters, thus leaving the clump essentially undisturbed until the divisions are year-old establishments.

A word of caution to those who divide irises in the fall—the attempt should not even be anticipated before a finger-examination around the clump shows that the white thong-roots are beginning to push out of the thickened,

swollen rhizomes' growing ends. These will mainly be at the very edge of the clump. The true dormant period of this group of irises, as with most irises, is in the summer, at which time the roots lose their plumpness to become shrunken fibers of absorptive organs, and all top growth ceases, and the rhizomes become fat with promise. Transplantation must *only* be during the period of active root growth, which may commence at the end of summer with the first fall rains, or in certain areas or under certain conditions, may not begin until mid-autumn, even early November. Success with growing divisions will be interdependent on conditions of moisture and temperature for several weeks following the dividing. Unless the new individual can make the necessary amount of root growth before winter, chances of survival in the open are slim. If the division must be delayed until mid-October, they may come through a mild winter, but the odds are against it, at least in the North. California gardeners, who have grown irises far longer than most of us, advise fall division, but there they enjoy growing weather most all winter long, hence their assurance of success.

In the Puget Sound climate of my own garden I prefer early spring. The root growth, slowed by winter, re-commences as the top growth begins to lengthen. With proper care, division can be successful until such time as seed capsules are forming. As these ripen, the dormant period sets in, although leaves persist in their green, functional manner, and the plant does not appear "dormant." There is one exception to this dormancy; *Iris tenax,* which is deciduous in winter, has a more complete dormant rest during its leafless period, but can be divided in early fall or early spring as can the others.

To set a calendar date for spring division would be presumptuous; are any two springs ever the same? Certainly mid-April, for this area, would be safe, but if one could be positive in March that two or three weeks of warm days and frost-free nights would follow, then earlier division is to be preferred, though one most assuredly would sacrifice the season's blossoming in any event. Californians lose spring divisions because summer follows too closely, with too much heat and aridity. Whether fall or spring, protect divisions from winds and heavy rains, for excess moisture or soil drought, or dessication of foliage can all lessen the plant's chances of survival. Of course, to divide into pots to be carried on in a lath-house, frame, or cold-house is ideal, with the well-rooted new individuals to be put in the garden later, or shared with others when the pots are full of new roots.

While all irises are lovely, and among them the Pacificas are some of the daintiest, there are superior clones to be coveted, propagated and shared. Possibly the most favored of the many here in my garden, year after year, is Ruth Hardy's 'Valley Banner', a *tenax* to all appearances, white with a sharp pattern of electric violet-blue over the falls (sepals) in butterfly wings design; the standards (petals) white with a few lines and shadings of the same in the midrib and to the base, the style-arms brilliant red-purple. It is vigorous, floriferous, and quite surprisingly, can duplicate itself (approximately) from self-pollinated seed. There are several superior albino *I. tenax* here; the finest for size of blossom, vigor, floriferousness, and petal substance has been named 'Bella Blanca.' Collected in Washington County, Oregon, this has given some well-branched flower stems when crossed to 'Agnes James', the well-known collected albino *I. douglasiana.* A dainty white *tenax,* quite different in aspect, has been named 'Monday's Child' and 'fair of face' it is indeed. Zelne Quigley found and named it.

Among the *innominata,* 'Rogue,' selected by Marvin Black from a lot of garden seedlings, is a warm white with a bright golden spot on the falls. Lee Lenz's innominata-like 'Santa Paula' is similar, but in two tints of yellow.

(Although a hybrid with *douglasiana* was one parent, a further generation of using *innominata* gave the *innominata* look). Another innominata-like treasure is the reddest of several 'red' irises in the garden—'Hinges of Hades'—in color the blended fiery reds of molten metals, and surely those hinges are as red-hot as the flower.

Another top favorite is a child of the bitoned *douglasiana* which Eric Nies named 'Amiguita.' The fledgling, called 'Ami-Royale', is about half the stature of the parent, but done in sharper contrasts—sky blue and pansy velvet. It came here from the California garden of Helen and Dick Luhrson, and is derived from the above mentioned 'Santa Paula' on the other side of the family. From another California garden, that of Marion Walker, came the douglasiana-appearing 'Ojai', a soft, subtle, sumptuous, silky blend of ecru and palest lilac with a few accent lines of deep violet toward the mid-section. Pronounced Oh-hi, this is for the larger garden, its *douglasiana* foliage being a bit course in a small place, but the flowers are elegant. Bob Nourse has sent, for all to enjoy, a most fascinating novelty that he named 'Greenbriar Contrast' which appears to be a smaller or refined form of *I. douglasiana.* It is colored a rich jersey cream with the trinity of styles in the center a clear amethyst-lilac—certainly a most beguiling flower.

These have been assembled with all the others of Western irises, collected and garden-grown alike, as a focal point for study, propagation and breeding in hopes of deriving a hybrid strain—perhaps a series of color strains—plants that will be easier to grow in a greater range of climates and conditions than are their wildflower ancestors. The first seed is to be offered through the Seed Exchange as 'Rosedown strain of Pacifica Irises.' Rosedown is the name of the garden; Pacifica is an allusion to the popular or garden name for the Californicae portion of the Apogon (non-bearded, rhizomatous) irises.

Seed sown in autumn will germinate the following spring and flower two years later. Soil should be friable, a well-drained mix high in humus; exposure should be open to sun but protected from extremes of wind and temperature in climates of deep freezing. It is to be hoped that from these and similar efforts will come an easily grown strain so that everyone may enjoy these most dainty of irises.

NOTES FROM THE NORTHWEST

SALLIE D. ALLEN, *Seattle, Wash.*

ALPINE EUROPE:—"Leisurely Wanderings Through Alpine Europe" was the title of the program scheduled for our annual dinner meeting last November, to be planned and presented by Mr. and Mrs. Ray Brandes. In September our members were deeply saddend by the death of Mrs. Brandes. Because of loyalty to our group and the sincere desire to bring pleasure with these pictures, Mr. Brandes offered to give, as scheduled, the program based on their European trip taken the previous year. This not only brought us one of our most outstanding programs, but was so meaningful because it left us with the warm memory of Mimi Brandes in her beloved Alps.

The central Alps probably attract more tourists than any other mountainous area in the world, however one is impressed with the unspoiled landscapes, uncluttered trails, and the natural beauty. Mr. Brandes spoke of hostleries throughout the Alps, located a day's hike from one another, operated by members of the Alpine Club. This system makes it unnecessary to carry food or sleeping bags, as a night's lodging and meals are provided members at a nominal cost.

Garmish Partenkirchen, in the Bavarian Alps, is the land of the lederhosen and dirndl. It is a quaint village where scarcely a home is without a colorful

mural or two. The contrast between old and new is very apparent. The picturesque peasant village is nestled in a quiet valley while near by the modern engineering marvel of a lift transports visitors to a rocky mountain top where a restaurant is operated for their convenience.

Plant hunting accounts and descriptions of the Dolomites of the extreme north of Italy could not possibly do justice in relating the awesome beauty of peculiar rock formations, deeply-cut valleys, charming little villages, and glorious flora. Growing from what seemed solid vertical rock were clumps of the "Hairy-Alpine Rose", *Rhododendron hirsutum,* low-growing, thickly branching shrubs with short twigs. The leaves are round or elliptical, thin, bright green, and fringed on the margins with long hairs. The flowers are more lightly colored than those of the well-known *R. ferrugineum,* the "Alpen Rose of Switzerland." *R. hirsutum,* said to prefer a chalky soil, may be found throughout the European Alps.

Any descriptive account of the Dolomites, Bavarian, or Swiss Alps leaves one totally unprepared for the spectacular beauty as seen through colored slides.

EDINBURGH AND SERPENTINE:—An account of the International Botanical Congress, held in Edinburgh last year, was given us by Dr. A. R. Kruckeberg, followed by a lecture based on the paper he presented at the Congress. Dr. Kruckeberg has written an article, also based on his lecture, which appears elsewhere in this issue under the title "Rocks and Plants—An Episode in Montane Ecology."

ALASKA:—The wealth of Alaskan flora which remains generally unknown to our gardens was illustrated by a program of slides by Mr. Kenneth Roberson, associated with the Fisheries Research Institute of the University of Washington. His interesting occupation takes him each summer to the Wood River Lakes region, near Bristol Bay, southwest of Anchorage. This is truly wilderness, accessible only by air or by boat; the nearest settlement, an Indian village forty miles distant. We have little conception of the vastness of Alaska; some sections are so remote that the botanical possibilities have never been explored. Following are brief descriptions of a few of the extremely desirable plants Mr. Roberson had photographed:

Primula borealis—showy, bright pink flowers on three- to four-inch scapes, small foliage; always found growing under very moist conditions.

Viola langsdorfii—tufted growth, flowers a deep blue, prominently veined, distinctive. Moisture.

Arctous alpinus rubra—deciduous, prostrate at high elevations; shiny leaves, deeply veined; resembling trailing alpine willows. Flowers small, white followed by red berries; colorful fall foliage. Attractive *Ericaceae.*

Iris setosa—sword-like foliage to about two feet, flowers blue, blue-purple, occasionally pale lavender, somewhat resembling Japanese iris. Occurs in marshland though tolerant of drier conditions.

Campanula lasiocarpa—forms neat, compact rosettes from which rise large indigo-blue, wide open bells on pedicles no longer than three inches. Found in meager gravelly soil in lowlands or mountain tops; not found in intermediate zones. A jewel!

Rhododendron camtschaticum—prostrate in the wild, three to four inches in cultivation, deciduous, leaf and flower stems hairy, flowers magenta one to one and a half inches across. A spectacular sight to see massed in the wild.

Pinguicula vulgaris—small carnivorous herbs, long-spurred, deep blue flowers somewhat resembling a violet at first glance. Small yellowish-green rosettes,

leaves of a buttery texture, foliage disappearing in winter leaving a central fat nodule. Found in moist places.
Andromeda polifolia—"Bog Rosemary"—dark green, narrow-veined leaves, white beneath, spreading through muskeg swamps. More compact and shrub-like when grown under less moist conditions. Delightful pink, urn-shaped flowers.
Rubus arcticus—"Arctic Bramble"—three glossy deep-veined leaflets on two-inch stems, fragrant rosy-pink one-inch blossoms, edible berries. Meanders through muskegs.

SPECIES IRIS:—The genus *Iris is* widely distributed throughout the Northern Hemisphere, and the most known, grown, and prized species have been those imported into the United States from foreign lands. In her illustrated lecture, "Species *Iris",* Mrs. Joseph Witt embraced a wide selection of irises, large and small, from many countries. She stated, however, that the United States is the native habitat of some of the most beautiful and desirable species. How often it is that the gardening public feels that a plant can only be worthy if imported and that our native plants are "only wild flowers!"

Among the better-known American iris for the rock garden are *Iris cristata* and *I. verna* of the East, which have been cultivated for many years. Also from the East is *Iris setosa* var. *hookeri,* differing from the species, (the Alaska iris) by growing only eight inches tall, and lavender in color, rather than blue. It hasn't been until recent years that work began with the Louisiana and western iris. The most widely distributed species in North America is *I. missouriensis,* both geographically and altitudinally. It is slim, graceful, clear light blue, lavender to white.

A fine discussion "Irises of the Pacific Coast" by Roy Davidson, appeared in the July 1964 *Bulletin,* pp. 83-86. Much is being done now in hybridizing Pacific Coast iris species. It is through the dedicated work of people like Mrs. Witt and Mr. Davidson that these extremely beautiful irises will eventually be brought into general cultivation, for these people and others like them study the horticultural requirements of these irises which have hitherto been considered only as collectors' plants.

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SEED SIFTINGS

(Editor's Note)—The storm that had its beginning in Mr. Zollinger's recent article "Impostors in the Seed Lists" (ARGS *Bulletin* October, 1964) and burst in all its fury in the following issue, has now subsided. Yet the thunder still rolls on and there is an occasional flash of lightning as members express their opinions. The storm, when it has faded into the distance, will not have left havoc in its wake—rather the opposite. Many members have taken Mr. Zollinger's article to heart, have turned the spotlight of introspection on their own relationship with the Seed Exchanges, particularly our own, and have put much thought into their suggestions for improvement. Out of this controversy has come much good, and the expressed loyalty to our Seed Exchange and its director is noteworthy. Excerpts from letters on this subject follow:

Betty Jane Hayward, Route 1, Scarborough, Maine, has written a few lines under the heading, "In Praise of the Seed Exchange", and prefaced it in an accompanying note in which she said, "I have valued the Seed Exchange for so many years and I've wanted to say so, for so many of the treasures in my garden are there because of its existence." Her short article follows:

> One of the chief pleasures and rewards of rock gardening is the growing of choice and rare plants from seed. Fortified by knowledge of experiences of able writers in books and journals, our imagination is stirred, and we want to try it ourselves.
>
> The scope encompassed by rock gardening is perhaps wider than in any branch of horticulture, suitable plants coming from valley, woodland, to highest mountains, and from islands around the world—small wonder we are intrigued!
>
> How favored we are that seeds of rare plants are available to us from our own Society and from those in Great Britain with kindred interests. Members in these groups who take time to harvest and package seeds for our benefit, deserve our appreciation and regard. Particularly, those members who assume the trying task of distribution, with all the labor and care it entails, deserve our sincere gratitude. I marvel at the generous effort.
>
> When the seed lists come in winter, what a joy to check and go over your choice, anticipating the welcome packet in the mail. How much greater the pleasure if you have had a share in the operation. Your contribution is always appreciated. I remember having a note thanking me for six seeds

Gentiana lutea—Close-up taken in the Alpine Garden, Lautaret, France, end of July, 1964

of a very rare plant; that was all that could be spared.

The ARGS has one of the finest lists; members from across the world send choice seeds. These seeds need not be of the rarest—good suitable kinds are always needed. It is somewhat of a task to gather, clean, and package them, but how can we really share in this generous undertaking unless we contribute something of ourselves?

A few words from Mr. Richard Langfelder, Chappaqua, N. Y. on the subject wherein he wrote that he viewed Mr. Zollinger's article, not as an attack on the Seed Exchange, but as one on the donors who send in seeds under the wrong names. He said that he had some of the same experiences about which Mr. Zollinger wrote, and added, "In the last twenty years it has happened that seeds brought from commercial sources were also misnamed and some of the seeds never germinated." Then he added a few words of warning. "Never forget," he wrote, "that some seeds should be planted right after harvest. If the right time has passed, some will germinate in one or two years, and some will not come up at all. What we need is education for the seed collectors, how to collect, how to store, and how to clean and label the seeds." He closed with this declaration, "If we did not have a Seed Exchange, we would have to invent one."

From Madison Heights, Virginia, Mr. Leonard Uttal gives us the benefit of his thoughts on this trying subject. His article follows:

"If the discussion in the October issue of the *Bulletin* of possible improvement in the Seed Exchange lists was meant to stimulate suggestion, I take the bait. I have had my share of intruders in my rock garden, and now, contritely, I wonder how many "goofs" I may have contributed.

"It is the story of human endeavor that while perfection is always just beyond the horizon, the pathway is strewn with improvements. Where many people contribute names to a single list there is bound to be an element of inaccuracy. In nomenclature there is always room for improvement. The rewards

are increased prestige for the Society and sounder knowledge for ourselves.

"The contributor of seeds should be as certain of the names of his plants as possible. Names inherited as "Hand-me-downs" have a way of becoming errant. Have you not had that quizzical feeling of insecurity about a plant's name? Many of us could do a "right smart" job of looking up the name of a stranger, but using botanical keys can be quite a trick. In very many cases, as with complex genera, even through the key a name should not be considered as final until it has been confirmed by comparison with comparative material. I suggest, therefore, in the case of such uncertain species, the contributor should prepare a pressed, dried specimen of the plant according to standard botanical methods, properly labeled, and securely stored so that in time it may be presented to an expert for his opinion.

"For confirmation of nearby native plants, one may consult botanists at state universities or colleges, or whatever herbaria may be near. For native plants from distant sources, the larger university botany departments, or the herbaria of large museums or botanical gardens can either furnish the identification or provide leads. When it comes to plants of strictly garden origin, the botanical gardens and the herbaria of horticultural institutes may serve. For a list of appropriate institutions see *The Gardener's* Dictionary, J. W. Stephenson, 1960. Hanover House, Garden City, N. Y.

"Now—by no means hold up the contribution of seeds of fine plants simply because you cannot furnish the proper name by dead line. Send it in under the genus name, if known, with a note alluding to some property of the plant, or its collection locale, pending the species name. This can always be furnished later, once it has been obtained. A perusal of our seed list will demonstrate that this system is practiced by some of our most eminent contributors.

"Perhaps it might be suggested that I am proposing a rather burdensome proposition upon a labor of love. I rather think that as one takes up this scientific approach, he will find it a reasonable practice, and one which is stimulating and rewarding.

"To reduce the synonymy and illegitimate epithets which plague all seed lists, and which may arise out of contributors' use of outdated references, something the Society might consider is the adoption of certain books and indices of plant names as official for the Society. This is, of course, quite a serious matter to handle and would presumably be a job for the professional plantsmen among us."

Perhaps an item or two of Seed Exchange interest, not concerned with "impostors" would be in order. Another new member, Mr. J. Starek, Prague, Czechoslovakia, wrote to Mr. Harkness in January, this year, and opened his letter with, "I have joined the American Rock Garden Society. Being a functionary of the local Rock Garden Society, I find it very useful to read the ARGS *Bulletin* and to use other facilities of your Society." He went on to say that he was sending some seed at once and that he planned to send more after this summer's collecting trips into mountains whose names are seldom, if ever, mentioned in our rock garden publications—High Tetras, Giant Mountains and Karpats. Concerning our own seed list, he wrote, "Most interesting plants in your seed list—according to our point of view are undoubtedly *Lewisia, Dodecatheon, Erythronium* and *Gaultheria* in all their varieties. But I do not know their hardiness—our temperature is about minus twelve degrees." Next year's seed list should be enriched by our new member's contributions. Watch for them!

Monsieur R. Ruffier-Lanche, who year after year, sends seeds from the Alps for our Seed Exchange, sends pictures sometimes, also. Mostly they are plants representative of his contributions. Since such illustrations can not be used in

Acantholimon armenum—Individual with long styled flowers, photographed in the Botanic Garden of the University, Grenoble France, end of June

the seed lists, it seems proper to use them here. The generous notes sent with the seed packets and published with the seed list are greatly appreciated.

It is not too early to start thinking about seed collecting for the next seed list. Early-flowering plants whose seeds must be harvested months before the Seed Exchange is ready for them must have thought given to proper storage during the interim. Every effort should be made to determine exact nomenclature where any doubt exists. Seeds are important! The Seed Exchange is important! Being right is important!

IRIS STOLONIFERA

MARY ANN HEACOCK, *Denver, Colo.*

This is the first year I have requested seed from the American Rock Garden Society's Seed Exchange, as I am a new member. I was very interested in the notes given by R. Ruffier-Lanche on *Iris stolonifera* in the Society's current seed list.

I am very fond of the Aril-breds and know something of this iris. It will accept the pollen of the dwarf iris and the tall bearded iris and the resulting hybrids are very interesting. The fact that the seed offered is apparently garden grown seed there could be some hybrids or possibly new variations of this species develop from the seed. The seedlings will all prove interesting.

One thing he did neglect to mention in his notes is that the seed should be planted quite close to each other in the seed container, (they seem to like company). There will be about 25 percent germination the first year, more the second year and so on for about four years. In some cases it is known to have taken as long as twenty years for the seed to germinate, so under no circumstances should the seed container be emptied out until almost all of the seed have germinated, or at least sifted out of the soil to see if they are still intact, for if there is not a viable embryo, the seed will disintegrate, and by pressing the shell between the fingers, one can tell whether it is soft or firm. Any firm seed should be replanted and kept moist and cool until germination is effected.

We use sand and peatmoss as a planting medium for the Aril seeds, but different sections of the world have their own favorite planting mediums. Cover one half inch deep and keep seed moist.

The first year the little seedlings will not go dormant during the summer months, but thereafter they will go dormant, so one should not assume that the plants have died. The Regelias are very hardy and can take more summer moisture than other Arils of the Onco group. The fact that *I. stolonifera* has forty-four chromosomes makes it valuable to iris hybridizers as most of the seedlings will be fertile, or at least will yield a larger number of viable seed than will some of the other Arils. In order to get the Aril characteristics one should use the *I. stolonifera* as the pod parent.

(Editor's Note)—For your convenience the donor's note on this iris, as it appeared in the seed list is as follows:

Iris stolonifera. One of the awe inspiring Aril-Iris; true, the Oncocyclus group, in general, *is* difficult, as most species cannot stand any degree of moisture when summer-dormant, though they can stand it in winter, and ask for it in spring. Most, if not all, are very frost-hardy. But the Regelia group, of which *I. stolonifera* is one, are much less exacting as concerns summer dryness, and are still hardier to frost. But all Arils are extremely slow to germinate; afterward, they make good progress, flowering in the third and fourth year from seed germination (*not* from sowing) and sometimes in the second year.

FOR THE LADIES

Despite the recurrent adverse comments concerning so-called "Whipped Cream" elements in various articles appearing in the *Bulletin* from time to time, the editor feels that as long as the majority of ARGS members are women, occasional references to culinary matters within the Society are not out of order, especially if kept to a minimum. The ladies, bless them, though keen gardeners all, have an inherent interest in gastronomy, and what man, horticulturist or not, would have it otherwise? Many a surprisingly good dinner, enjoyed as a matter of course by the lord and master (or the mere man, depending on the viewpoint), has had its inspiration and the details of its composition originate in the garden while the good wife was on her knees pulling weeds or otherwise tending the precious plants there.

One of the advantages a society such as the ARGS has over those dedicated to a single genus, or those whose object is strictly horticultural, is that of wide horizons of interests. Because of these many interests our membership is diversified, and it follows that the contents of the Bulletin must likewise be diversified, lest there be members whose particular interests be excluded. The contents of the *Bulletin* must be in the nature of a potpourii so that there is something therein for each member. But nice discrimination must be practiced to assure that the ingredients are in proportional accordance with the tastes of the members. Some such proportions as follows might do: Horticultural in all its aspects as applicable to rock gardening 75%; Organizational 15%; Biography and Book Reviews 8%, and the other 2% seasoning in the form of fringe interests, of which cookery and the enjoyment of its products is one.

The editor can hear some disgruntled member mutter, "Next we will be having recipes in the Bulletin." How right he would be! Do not read on, dear 100% horticulturist! What is to follow is not for you. Nor can any of our ladies be blamed, for it is a man who is responsible for starting this—a man who is very much appreciated by the Society—Claude A. Barr. He wrote to

the editor that in his search for seeds last fall he had found none on the bushes of *Shepherdia canadensis,* the Buffalo berry. There had been no berries. Now on the bluffs which are a part of the editor's Port Townsend home, bluffs overlooking Puget Sound (a far cry from Mr. Barr's South Dakota) there are also shrubs of this same species; again no berries. However other berries native to the area were this year in good supply, especially the berries of *Mahonia (Berberis) nervosa* and *M. Aquifolium,* known indiscriminately as "Oregon Grapes". Now this is somewhat a case of "sour grapes" as the berries under discussion were grown in Washington, yet Oregon seems to get the credit.

Anyway, the editor, in order to take Claude's mind off the missing Buffalo berries, noted in his answer that Mahonia berries were wonderfully abundant in Western Washington, of fine juicy size and lustrously blue. Answered Claude, "Do you use Mahonia berries for jelly? When I found the big crop of "grapes" this fall, I brought down some quantity and gave portions to two friends who made jelly of them for the first time and were delighted. The fruits were perhaps at just the right stage, but sharp and bitter to eat raw."

Now for the benefit of Claude and his friends and all ARGS members at large, provided they have the necessary berries growing and fruiting in their neighborhood, the editor is going to reveal an old family recipe. Under ideal conditions, with properly ripened berries from two shrubs of different families, with expert cookery, a prayer, and certain mystic incantations, a jelly supreme will be achieved.

By now you should be consumed with curiosity as to the identity of the second berry; none other than the rather insipid, nearly black, squashy berries of *Gaultheria shallon.* The vapid sweetness of the Gaultheria berries tones down the bitterness of the "grapes". It is a case of two berries, neither very pleasant to the taste alone, when combined, resulting in a fruity flavor that is a gourmet's delight. Following is the recipe: use prime berries in nearly equal quantities, by weight (they usually ripen at the same time and can be found growing in the same areas). Proceed as you would in making jelly from any other berries.

This is, of course, a man's idea of a recipe. The ladies will know what to do. Name the jelly what you will, but please do not call it "Oregon Grape" jelly, unless perchance you live in Oregon.

RANDOM JOTTINGS

MRS. A. C. U. BERRY, *Portland, Oregon*

A long gardening life has left me with many beautiful memories, but I think the ones that stand out the clearest are those of plants and flowers that I have seen in so many places in our mountains and valleys. I seem to recall someone, somewhere saying that our plants have all been discovered long ago. So here are a few of the things that were different, and if they make just one person eager to see for him- or herself, so much the better.

One that I did not see for myself was the white form of *Douglasia laevigata,* which a friend discovered in the Olympic Mountains; also the white form of *Campanula piperi* which has been since found by several people. One gardener in Victoria succeeded in growing it in a crack of a rock for several years, but finally it died out. More than thirty years ago, I was with Dr. Gabrielson when he first found the white form of *Iris douglasiana.*

Just two years ago, we were driving in the Trinity Alps (Northern California) when we decided to stop for coffee. We clambered over a tree trunk and there found the most heavenly colored forms of *Silene hookeri* that I have ever seen. They were of an exquisite salmon-pink shade.

In the Three Sisters area of Oregon, there were some of the tiniest, prettiest annual mimulus. In our own district here there are wonderful plants. Two of them grew on rock faces or shelves which have been, or are going to be, demolished by road builders. One is the Columbia Gorge form of *Douglasia laevigata,* the daintiest, prettiest flowers. In the early days Mr. Correvon saw it flowering in a friend's garden and was very enthusiastic about it. Another one was (I am sorry not to be able to write "is") a dodecatheon. Could it have been *D. alpina?* Growing on a rock shelf that baked hard in summer heat, were plants with white, pink and rose-colored forms with large, very large, flowers on two to three inch stems. The whole cliff has been demolished, and I know of no other place where it grows.

In the Mt. Adams district, in Washington, is the very rare *Campanula scrabella* growing in the cracks in the rock face. Where you succeed in prying off a piece of rock, you can see the roots running up and down in the crack with perhaps a few grains of leaf mold and apparently nothing to feed on. Just try it in the garden in a like spot and see it perish! This is in the same general area as the Bird Creek Meadows which Mrs. Allen mentioned in the last *Bulletin.* Somewhere, there, is a pink form of *Cassiope mertensiana.* It's still growing there, I hope, for I left it alone. I hope some one else finds it and can take cuttings.

Farther north in Montana, we found big wads of *Eritrichium* growing profusely along the roadside. I think that was limestone country. As for the rare *Aquilegia jonesii,* after looking for it without result for a long time, we found it growing within one hundred feet of an automobile road; a grand place for old legs. There are so many other plants that we have found (or haven't) but I will mention only a few more.

My own particular love centers around Primulas, and we have had many visits to the Wallowa Mountains to find *Primula cusickiana.* I think that it was on our third visit that we found it growing in profusion. After walking all morning, we were ready to give up and have lunch, when all of a sudden there came a breeze with a most heavenly perfume. We dropped everything and ran over the top of the hill, and there sticking up on tufts of grass was *P. cusickiana.* We even found an albino and a rose-colored form. I wish we had left them there. I have never been really successful in growing this plant, but Mrs. Gale, in her wild flower nursery, flowered it regularly and watered it regularly. In nature it goes dormant very quickly and dries out completely in summer. Mrs. Crewdson calls it a "plant in a hurry" for in a few weeks there is no trace of it. We found it growing around the roots of pine trees in deep shade (never fir trees), but the first ones were on a northwest-facing slope with full sun. There was one spot with trickles of water coming down. On one side the Primulas flourished—none on the other side. The logging road has been changed so we have never been able to find that particular place again.

Some other plants we have found; a delphinium with very large, very dark plum-colored flowers (eight to ten inches high) growing from a sort of corm, and a white form of *Lupinus lyallii,* which is a treasure.

One of the plants we have not found is an exquisite blue-green gentian. Mr. Marshall, who took its picture, said that he never saw it twice in the same place (Three Sisters area) so he thought it must be a biennial. Its picture is beautiful.

And now for a plant that may not even exist; an albino form of *Fritillaria pudica.* The fritillary grows in stands of hundreds of thousands in places, and somewhere there must be a white form. If so, it would be one of the loveliest flowers imaginable. So far there has been no luck in finding it. And for the last there is a puzzle. We found on a ridge north of Sun Valley, a plant with open-

laced gray leaves (sometimes tinged with rose) and a pure white flower, fading to rose, on an eight or ten inch stem, like a Japanese anemone. What is it? Does anyone know?

NOTES FROM H. L. F.

First, I would like to send greetings to the flourishing groups of rock gardeners, from Maryland to Seattle, who are getting together to share the excitement, inspiration, and challenge of our special kind of gardening. The activities of these various groups are reported elsewhere in the *Bulletin*. Keep the editor informed.

I have heard it said that the American Rock Garden Society sounds to others, very often, like a rather snobbish "in-group", admiring one another and excluding all other horticulturists as rank amateurs. To a certain extent this is true. What other group encompasses in its horticultural activities so many genera of plants from as many corners of the world? Farrer required two fat volumes to describe and to prescribe cultural direcitons for the rock garden plants known to him in 1918. By 1937, Sampson Clay was inspired to add a supplement of almost 700 pages. Since that time many new plants have been described and figured in the pages of our own publication and those of our sister societies abroad.

Just last month (this was written in February to make the dead line) there was in the pages of the *Journal of the Royal Horticultural Society* an account, with mouth-watering pictures, of a plant exploration trip to Iran. I could not help thinking how many of the plants shown there would thrive under the subtle and expert thumbs of a Le Piniec or a Kline in Southern Oregon where the climate and ecology seem similar. But it takes years to get these things into general circulation. First they have to be known about; then they have to be propagated and distributed, with all the slow intermediate steps. Unless we begin, it will never be done.

In our own country there still are many desirable native plants not in cultivation and many more outstanding or adaptable forms of those already introduced. It has been suggested that the ARGS publish a list of state floras or handbooks and a list of local nurseries for the use of our members who nowadays travel so frequently from one section of the country to another. It is my suggestion that each of our Regional Units and local groups take this on as a continuing activity. New handbooks are published annually. Nurseries wax and wane. If there is, for instance, a local flora and nursery committee in each group, this information can be kept up to date.

Let us say that you are going to Nebraska; you write to the chairman of the Omaha group and ask for the name of the best flora of the region, the names of interesting nurseries, the list of possible gardens to visit and the names of members who might be able to guide you on field trips. Some groups are already doing some of these things admirably, as I know from happy experience.

In addition, and I think in some ways of more lasting importance for the continued growth of rock gardening, each group should have a local native flora committee whose primary aim would be to study, publish information about, collect, grow and propagate desirable native plants suitable for rock gardens.

It is universally true that we admire and desire the remote and exotic. A recent letter from Jos. Starek, member of a rock garden club in Prague, Czechoslovakia (and a member of the ARGS, as well) contained this paragraph: "In our country we have also rocky mountain regions with some interesting elements of our native flora. Some of them possess a high decorative value in their native localities and should deserve more attention of our plantsmen and rock gardeners. But I have to admit that my garden friends prefer rarities from abroad to those local ones."

He goes on to say that they have been collecting, hybridizing, and selecting among the many species and color forms of *Pulsatilla.*

If, each year, local groups became expert in just one genus of the native flora, how far we would move in ten years! How much further still, if each member of a group took a particular species and made it the subject of intensive study for a year: its variations in nature, its ecology, its cultural requirements. Collect plants, grow them, try various methods of propagation, collect seeds, take pictures in color, in black and white. Then write it all up for the *Bulletin* and send seeds to the Exchange. Our editor's life would be happy, your life would be happy, and rock gardening would take great strides.

RECIPE FOR "NON-SLIP" CEDAR ROUNDS

BETTY MILLER, *Seattle, Washington*

Those wood rounds which we find so very desirable for our woodland gardens, paths, and patios inevitably prove themselves a danger to any footed-form of life. Regardless of drainage underneath and the many efforts to keep them useable, they soon reach the point of no return!

Have found the following treatment successful, which is best applied to new rounds. Otherwise, try scraping the old rounds with a steel brush before applying. The procedure may have to be repeated since the coating wears off more easily on previously moisture-saturated wood.

Mix dry (very dry) sand with Steelcote Lay-tite Rubber Base Coating LT 40 clear. (Retail price is about $12.00 a gallon). This coating was designed for treating the wooden hulls of ships (which never completely dry out) and any paint or hardware store should be able to order it for you. Mix thickly and the coating will cause the sand to adhere to the wood. This sandy surface weathers quickly and is not unattractive.

OMNIUM-GATHERUM

It is dead line time and some interesting happenings in the East have not been reported to the editor and so cannot be recorded here. Then there is the annual meeting to be held at Garden in the Woods in Massachusetts on May 15 (an awkward date). This meeting will be past history by the time you read this issue of the *Bulletin,* but you will find very little about it here as May 15 falls in our blind spot—that time lag between the dead line and the date this *Bulletin* reaches the members.

The editor had been urged months ago to report in this issue an event of the first magnitude which is to take place on May 15, an event which will initiate something new in the annals of our Society. On that date at the annual dinner at the Sudbury Inn, Sudbury, Mass., Mr. H. Lincoln Foster, president, will present testimonial awards to five members, who, it is hoped, will be present. The citations will be hand-lettered and illuminated, and inserted in red leather folders. Each will read, "The American Rock Garden Society presents this Certificate of Appreciation to ..... for his (her) outstanding contribution to rock and alpine gardening and to the particular study of our native plants."

It is with great pleasure that we here record the names of the five recipients: Mr. Claude A. Barr, South Dakota; Mrs. A. C. U. Berry, Oregon; Mr. Will Curtis, Massachusetts; Mr. G. G. Nearing, New Jersey, and Dr. Edgar T. Wherry, Pennsylvania. Congratulations!

It is indicated that at this point there should follow a resumé of the lives and accomplishments of these five illustrious members. To do this was the editor's intention. To do this, certain details, unknown to the editor, were requested from

those to whom these details are known. These details have not been forthcoming. Let us believe that some unfortunate delay is responsible for their non-arrival by this, the dead line.

Should you notice that this July issue seems top-heavy with articles written by western members, and being a non-westerner, wish it were otherwise, please ask yourself this one question, "What have I done recently toward contributing material to the *Bulletin*?" With very few exceptions the answer will be "Nothing!" There is no paucity of material for the *Bulletin,* but the geographical distribution of the contributors is not in accordance with that of our membership. It seems that the East, where most of our members live, furnishes much less material than does the minority in the West. The ratio of contributions is not logical. All honor to our enthusiastic and willing westreners. What a *Bulletin* we would have, were our eastern members as generous in their contributions. By no means is it the editor's desire to pit one section of the country against another, but some action must be taken to influence our eastern members to contribute their fair share of material. Only in this way can the *Bulletin* be made representative of the Society as a whole. Are there any suggestions?

Now to more pleasant matters. Honor has been done another member; this time it is Dr. Peter Debye of Ithaca, N. Y., Nobel Laureate. He is 81 years old and professor emeritus of chemistry at Cornell University. According to a clipping sent in by Dr. W. J. Hamilton, Jr., another ARGS member from the same place, Dr. Debye was awarded on March 25, in Kansas City, the fourth American Physical Society high-polymer physics prize sponsored by the Ford Motor Co. Dr. Hamilton writes that Dr. Debye has a sizable rock garden in which he grows hardy cacti, which have to be hardy as some nights have temperatures of minus thirty degrees. Congratulations, Dr. Debye!

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