

# American Rock Garden Society Bulletin



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## BULLETIN

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# AMERICAN ROCK GARDEN SOCIETY BULLETIN

Albert M. Sutton, Editor

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VOL. 33

JANUARY, 1975

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## AN AMATEUR REPORTS

MRS. JAMES E. KASPAR, *Wayzata, Minn.*

I joined the ARGS some four years ago solely to acquire plant information and seed. Having started gardening in the early sixties, my plant interest has grown to a hodge-podge of beds and borders where every new plant is put in the spot considered best for it regardless of overall effect. An unforgivable attitude in the eyes of some! As years go by I well understand the reason. Beauty deserves a special setting! Also, when learning (with more enthusiasm than anything else) how to grow these plants I'll likely never see otherwise. I do things the easy way, quite possibly to repent at leisure. Does *anyone* have an antidote to keep the garden enthusiast from getting carried away?

I digress from the purpose of this article, which is to make my small contribution in return for all I have received. Still a rank amateur in the field of rock garden plants, I have succeeded with a few considered difficult. Is it in spite of or because of what I have done? Who knows?

The plant family concerned is the Orchidaceae. Naturally they are those considered the easiest members—*Cypripedium reginae*, *C. pubescens*, *C. parviflorum*, and *C. candidum*. To those who are new to gardening and unfamiliar with their proper names they are ladyslippers showy, yellow, dwarf yellow and white.

The first three are growing within three feet of each other in a wild-flower bed built over a burnt out maple stump. This was before I read that one must *never* do this! I fear someday the crumbling roots will cause problems, hopefully to be nipped in the bud by keeping on it an ever watchful eye. Fungi pop up from time to time and are promptly dispatched before spores can be shed. After this treatment they do try again but eventually disappear.

The bed is approximately eight feet in diameter, in high shade with some morning and late afternoon sunshine. The soil first put in was reasonably good garden loam as the original occupants were *Osmunda cinnamomea* (Cinnamon fern), *Hosta grandiflora* (Plantain lily), *Primula polyanthus* (Primrose) and May-flowering tulips—variety unknown. Only the Primroses remain. The bed is now crowded with the likes of Hepatica, *Anemonella*

*thalictroides*, Trillium, Claytonia, Dentaria, *Phlox divaricata*, etc. The excess must be constantly removed with great care, to keep such a variety in good health and from overwhelming its neighbors. A dandelion digger is my principal tool.

Any diseased plants, harmful insects, worm or slug is removed and destroyed at once. Only hand weeding is done. When taking out excess, resulting holes are filled with well-rotted leaf mold. Plants are mulched lightly with leaf mold or pine needles as their requirements dictate. Although the Primrose has periodic treatment of liquid fertilizer poured over each plant, no other plant food was used prior to this summer when I scattered Milorganite lightly through the bed. The results, good, bad, or unchanged will have to wait for time to tell.

Exact dates of plant acquisition are unknown. Regretfully, I am a poor record keeper. All *Cypripediums* were carefully planted with the crown just below the surface of the soil, kept moist 'til established and watered when a dry spell occurred.

*Cypripedium reginae*—purchased from a nursery at least six years ago. Clump of three, divided at time of planting, has multiplied well and this year there were 23 blooms. Three of the stems bore two slippers each.

*Cypripedium pubescens*—purchased five years ago. Clump of three left intact. Twenty-one blooms this year.

*Cypripedium parviflorum*? (Flowers are small but plant is tall and stems tend to flop over when blooming). A gift from a gardening friend four years ago. Has increased slowly. Five flowers this year.

*Cypripedium parviflorum*—Purchased six years ago. True dwarf. Flowers smaller than above. Plant about seven inches tall at bloom-time. Increases very slowly although it was handicapped when I accidentally injured a division three springs ago. Three stems with three blossoms after six years.

*Cypripedium candidum*—Gift from a gardening friend four years ago. Planted by itself at the base of a Clematis in light shade as they are both lime-loving plants. Clump of three has increased well; about nine stems this year but only two blooms. Does it lack some element in the soil or need more sun? Next year in early spring I shall divide the clump and experiment.

\* \* \* \* \*

ADVICE TO MEMBERS—Mr. Paul Boswell, of Massillon, Ohio writes, "There have been several comments by new ARGS members of late to the effect that not enough beginner information is being published in the ARGS *Bulletin*. I have been thinking that if these beginners will read carefully William Van Dersal's article on adaptability within plant zones (Jan. '74 *Bulletin*) and then buy *The Seedlist Handbook* by Bernard Harkness, which gives the areas of origin of the great majority of species available in seed exchanges, they can save themselves much grief in the growing of plants for their gardens. I have wasted much seed which, even when it produced seedlings, was not adaptable to my region; all of my experimentation to no avail. Now there is a clear-cut plan." For comments by members on *The Seedlist Handbook* read pages 120 and 121 of the July, '74 issue of our *Bulletin*. Also look at the ad on page 42 of the January, '74 issue.



## IN THE CAUCASUS MOUNTAINS

JOSEF HALDA, *Prague, Czechoslovakia*

The Caucasus is truly a pearl of nature. In no other mountains, perhaps, can be met so many kinds of plants (here occur about 6000 species) and such majestic, virginal nature. The mighty peaks, their shining glaciers streaming down to endless forests tissueed with silver brooks and rivers, catch the eyes of each visitor.

From a geological viewpoint, the Caucasus is a varied system with many ridges. The main ridge of the Caucasus, spreading itself from the northwest to the southeast, in length is about 1500 km. The width of this mountain chain varies strongly; its greatest width found in the area of Elbrus in its central part where it is about 180 km wide. In the eastern part, in Daghestan, it reaches up to 160 km across. Between these large and high systems is the central mountain chain, somewhat narrower (to 110 km) and somewhat lower. Westwards, all mountain systems are lower. The distinct peaks of Fischt and Oschten are only 2896 and 2808 m.a.s. and from there ridges drop down quickly. On the Taman Peninsula its ends are only about 160 m.a.s.

Eastward from Elbrus and Kazbek, the mountains slope down very slowly and gradually. Far to Daghestan run ridges with peaks above the level of 4000 m, for example: Tebulos (4507 m), Diklos (4275 m) and others. In the dividing lines of Daghestan stream up the massifs of Djulty-Dag (4252 m) and Bazar Djuz (4482 m). On the east, the main ridge of the Caucasus drops down quickly after the last mount, Baba-Dagh (3737 m).

The geographic position, neighbored by two sea basins (Black Sea and Caspian), by steppes and deserts to the north and, not far away, by very hot sandy areas on the south; varied geology, strongly divided relief and a wide spectrum of climatic conditions have caused to form there an extremely rich and varied vegetation. The highest mountains are Elbrus (5633 m—this name means a sovereign of mountain jinees) and Kazbek (5043 m), both very old, inactive volcanoes. Volcanic rock is limited only to massifs of these two mountains. The largest part of the Caucasus is formed by crystalline matter; granite, rula and metamorphosed crystalline schists. The western foremounts are of limestones, but limestones, conglomerates and sandstones are scattered over all the main ridge. In very small amounts here also occur the dacites, a kind of lava.

The Big Caucasus (in Russian, Bolshoy Caucasus) is usually divided into three main parts: Western Caucasus, from the Black Sea to Elbrus; Central Caucasus, from Elbrus to Kazbek; and Eastern Caucasus, from Kazbek eastwards to the Caspian Sea. I do prefer for myself the Western Caucasus, although its average elevation is much lower if compared with the Central Caucasus and even the vegetation is not so rich. Here are not more than 2000 species of plants. The character of these mountains recalls, too, my native Carpathians which I have liked from an early age. Perhaps it is





so caused by the fact that even the flora here resembles that of the central Balkans if we neglect some mid-Asiatic endemics and the ubiquitous ones. In this case, we see a lot of plants which are characteristic of both mountain systems.

For now I'd like to concentrate on the Western Caucasus. This province takes a western part of the southern slopes of the Big Caucasus and of the northern slopes of the Small Caucasus and the Rion lowlands situated between them. It starts on Taman, a peninsula on the coast of the Black Sea in the area of Novorossiysk, by low zones covered with forest which run first along the sea coast. Around the Sochi, it starts to climb and there are to be seen the first glaciers. Near the Chugush (3240 m) begins the main ridge, a continuous and distinct dividing mountain chain. On the north, paralleling the main ridge, runs another one which is named "Skalistyj Chrebet" (a rocky ridge) composed of limestone, with distinct peaks, Bazachoch (3929 m) and Karakja (3610 m). The largest part of the Western Caucasus is in its uppermost elevations covered with permanent ice and snow from Mt. Oschten-Fischt eastwards. From Mt. Chugush (which has on its northern face a small glacier) the main ridge is formed by sharp peaks with distinct breaks; with numerous lakes, the basins of which were formed during time by glaciers; moraines and innumerable waterfalls. On Mt. Pseashkho (3255 m), situated about 80 km to the east, are some larger glaciers, but the continual glacier-chain starts another 60 km eastwards on Mt. Pysch (3787 m) and Sofija (3837 m).

The highest mountain of the Western Caucasus is Dombai Ulgen (4047 m). Its massif falls down on its eastern face to 2816 m, forming the source of the River Teberda and the Klukhor Pass through which runs the historic and well-known Sukhumi military trail. Northward of the main ridge of the Caucasus and parallel to it runs another ridge—a chain of mountains divided by river valleys into separate mountain massifs. Similarly, on the south is another parallel ridge with mountains reaching relatively great heights (Pshekish 2257 m, Magisho 4152 m).

The main ridge of the Caucasus is the line of division between two climatic zones—the warm and humid Pontic area and the more dry and cold Transcubanian area situated on the north with a more continental character to its weather. On this line two floristic systems meet—the Colchic and the North Caucasian phytogeographic areas—causing a rich floristic picture in this mountain corner.

My friend, Anatolij, who lives with his parents in Sukhumi, and I started from his home in the early morning before the weather became too hot. For the first part of our way we used the bus on the highway which runs along the coast of the Black Sea. About 2 km before Adler, the highway turned to the north. Everywhere around were to be seen fields relieved by light forests of warmth-loving oaks. In a little over an hour we were in a

*Rhododendron ponticum*  
*Erythronium caucasicum*

*Scilla sibirica*

*Galanthus caucasicus*

*Daphne pontica*

*Primula acaulis*

*Gagea lutea*  
*Cyclamen vernum*  
Jarmila Haldova

small town named Tshvezhipse. To the northwest of the town sweeps up the nice Mt. Atschishkho (2366 m) with snow on its top. There at the end of June awaited us three good weeks in the mountains. With all our gear, we stopped at the house of another friend, a forestman who is also a member of the wild protection service there. From him we borrowed guns. Although I usually dislike to take arms into the mountains, we had need of them to hunt some animals for our nourishment. We had with us only the most necessary food reserves, cameras and sleeping bags.

On our first day before noon we started through dense and dark beech forests upward over the foot of Mt. Atschishkho to Mt. Chugush. These beech forests of *Fagus orientalis* are nice for tourists in hot summers but less interesting for botanists. Except for several kinds of robust ferns and herbaceous shade-lovers, these forest are without undergrowth.

At 8 pm that evening we lay below the open sky to spend our first night as we would do each night for the next three weeks. Early next morning we continued on our way through the forest which was full of warbling birds. By noon we met our first firs (*Abies nordmanniana*). The forests of this area had not been damaged by people (woodchoppers) and the trees were often miraculously large and aged—500 years old, up to 50 m high and with trunks that reached 2 m in diameter.

There was more light in this forest and a richer undergrowth including *Rhododendron ponticum* and *R. caucasicum* just finishing their blooming period as was the sweet-scented *Laurocerasus officinalis*. Somewhat higher (900 m.a.s.) the fir forests were more common, taking up about two-thirds of the forest space and forming ancient and nearly virginal areas where from tree branches hung bunches of grey lichens. The association of plants below them was more varied. There were numerous kinds of ferns, raspberries, blackberries, Rhododendrons and the Caucasian relict blueberry (*Vaccinium arctostaphylos*). Friend Tolja cut from the *Vaccinium* a small bunch of branches and upon being questioned, answered only, "tea". Later, after the leaves had been dried, we boiled them and for over two weeks had very good tea.

We climbed a small ridge and walked down through a high-stemmed meadow full of tall thistles (*Circium*), *Heracleum* to 3 m high, *Aconitum*, *Delphinium* and several shrubs of *Ligustrum*. Then we went through a patch of very large bluish-white *Campanulas* and yellow-flowered *Centaureas*. It is impossible to name all of the species growing there together as it would take several pages. After a short walk across the valley of a small and rapid river, we finally reached the opposite slope at the foot of Mt. Chugush. There the forest, still formed of beeches and firs, changed abruptly to rocky slopes inhabited by formations of *Pinus hamata*. From afar, this pine forest seemed to be rather poor, but when we approached we saw that the top of the first sunny rock shone as if covered by a thousand jewels—the monocarpic *Sedum pilosum*. It inhabited, there, rocky places on a scale, which is for an alpine gardener, unimaginable. On screes of naked clayish ground mixed with gravel were large colonies of *Goniolimon caucasicum* with whitish or rose-tinged flowers, while on the more moist spots appeared *Rhododendron caucasicum* in groups over 1 m high.





*Astrantia helleborifolia*  
*Pulsatilla aurea*  
*Myosotis alpestris*

*Gentiana cruciata*  
*Rhododendron caucasicum*  
 Jarmila Haldova

At elevations about 900 m, firs and beeches again dominated. From there we easily observed zones of vegetation. The forest zone can be divided into three parts. The lower one, formed mostly of oaks (*Quercus macranthera*) intermixed with other trees, changed slowly into light forest, steppe and finally into grassy and shrubby steppe. The middle part is formed of beeches and a mixture of beeches and firs. The average temperature is 5° C. This is an average for 200 to 230 days. In the upper part are formations of birches and needle forests. Here the average temperature of 5° C is for only 120 to 140 days. Precipitation in this zone is from 1000 to 1500 mm, mostly coming at the end of winter and early spring in the time of melting snow and some after, but the summer and autumn are relatively dry. The rainfall is then replaced by clouds, fogs and dews. The characteristic species of undergrowth in this zone are *Rhododendron ponticum* and *Taxus baccata*; also many bulbous plants such as *Erythronium caucasicum* with its distinctly pink solitary flowers on

long pedicels between two mottled leaves. Its elongate bulbs are somewhat difficult to dig as they are often 30 to 40 cm deep in gritty and loamy yellow soil. The well-known azure-blue *Scilla sibirica* is often eaten by the wild boars as is the local snowdrop, *Galanthus caucasicus*. Here is also present a yellow *Gagea* of several species, the most distinct being *Gagea lutea* which is ubiquitous. *Convallaria transcaucasica* forms small colonies, most often under deciduous trees.

The rocks in the middle zone are moist and often not too sunny. On the eastern side of one such rock I found a cover of *Umbilicus oppositifolius* (*Chiastophyllum oppositifolium*) with pendulous yellow inflorescences. It grew in moist moss together with several tiny ferns. Here was also *Daphne*. On such rocks and screes we met several species growing together; *Daphne caucasica*, robust, up to 1.5 m high; *D. axilliflora*, to 1 m high and *D. pontica*, with minute yellow flowers and leaves somewhat resembling a laurel. *Pulmonaria mollissima*, often with blotched leaves, shone in the forest twilight with its red to blue-purple flowers.

With increasing elevation, slender spruces (*Picea orientalis*) with short dark needles were found more frequently in the forests. *Laurocerasus officinalis* climbed nearly to the limit of the firs, as did the holly (*Ilex aquilifolium*), *Ruscus hypoglossum*, *Hedera colchica*, together with species of *Sorbus*, *Castanea sativa*, *Acer laetum* and several others.

The formations of herbaceous plants became richer; the ground was often covered by *Oxalis acetosella* mixed with colonies of *Primula acaulis* which shone throughout the spring with its white and yellow flowers. We met with colonies of *Cyclamen vernalis*, often named *C. ibericum* or *C. abchasicum*, the flowers of which are bright rose, strongly sweet-scented and last over until late spring. The genus *Pyrola* is represented by several species: *Pyrola uniflora* (*Moneses uniflora*), *P. secunda* (*Ramischia secunda*) and *P. P. minor*, *media*, *chlorantha* and *rotundifolia*. Here also belongs the interesting saprophytic *Monotropa hypopitys*.

In light places in the forest and on meadows in the lower zone throughout the spring, bloom the golden-yellow, sweet-scented Azaleas (*Rhododendron flavum*). In early summer appears *Lilium caucasicum* with red, dotted flowers. In the middle elevations we found forests formed by species of *Malus* and *Pirus* which guested a group of endemic plants such as *Anemone blanda* with nicely blue flowers and white or rose *Pyrethrum poteriiifolium*.

At 1700 m the firs began to be replaced by mountain species of *Acer* and *Sorbus*. At 1900 to 2000 m were forests of maples with numerous high-stemmed herbs. Upwards, the dense forest became lighter and lighter and the maples were replaced by beeches and birches whose trunks and branches were strongly curved and twisted, thanks to severe winds and layers of snow several meters high, and were often adressed to the slope. The upper limit of forest was formed of *Betula raddeana* which had a more or less tree-like habit. *B. litwinowii*, there, was only shrubby, to 1.5 m high and mixed with *Rhododendrons*.

True formations of *Rhododendron caucasicum* (*Rhodoretums*) formed colonies closely resembling a tundra as does *R. aureum* in eastern Siberia. In the subalpine and alpine zones *R. caucasicum* grew only from 15 to 20 cm



high and the dense carpet of leaves covered the strong, twisted trunks up to 5 cm. Its flowers are rose, reddish, white or yellow and very pretty, also. The colonies of *Rhododendrons* migrate slowly during the centuries and their successions are very characteristic. In the places where the *Rhododendrons* have died out there remains very poor and very acid soil which is inhabited by associations of *Vaccinium vitis-idaea* whose colonies often grow together with *Rhododendrons*. Several interesting herbs grew under the protection of *Rhododendron caucasicum* where they were protected against severe winds and too great temperature fluctuations and did much better than in the open meadow.

Perhaps the most distinct and eye-catching plant there was *Pulsatilla aurea*, a splendid golden-yellow Pasque flower, which is closely related to *P. alpina* var. *apiifolia* (*P. a.* ssp. *sulphurea*) from the Alps. It blooms here much later, in July and August. It can also be grown in our lowland rock gardens. Very often we found *Gentiana cruciata*, known in Central Europe as an inhabitant of dried mountain pastures even at lower elevations. Quite unusual was *Astrantia helleborifolia* with shining pink star-like flowers. On dry places where *Rhododendrons* had died out were frequent carpets of *Antennaria dioica*, *Deschampsia flexuosa*, *Vaccinium myrtillus* and *Empetrum hermaphroditum* with numerous black and pruinose fruits which are food for *Lyrurus tetrax* which have their nests in the *Rhododendron* carpets where they are best protected from their most bitter enemy, *Gypaëtus barbatus*.

Interspersed with the *Rhododendrons* were alpine meadows, often distinctly dominated by *Geranium gymnocaulon* which is not an alpine for a garden but is an important food for capricorns. There often were present pale blue *Aquilegia olympica*, large and robust *Telekia speciosa* with golden-yellow composite flowers and basal leaves which recall a *Petasites*, blue *Aconitum nassutum*, *A. orientale*, yellow *Inula grandiflora*, pale blue *Campa-*



*Sedum pilosum*

*Goniolimon caucasicum*

*nula lactiflora*, *Pedicularis atropurpurea* with bright carmine flowers, *Rumex alpinus*, *Dryopteris felix-mas* and very nice blue *Colchicum speciosum* which climbed up to the alpine zone. The *Colchicum* blooms in early August and when we see a large meadow of several dozen hectares fully covered with its flowers, we feel ourselves as in some fairyland, not in reality. The open flowers, up to 25 cm in diameter, have in their throats white stars. This motif we can often admire on works of old Georgian sculptors, transformed in ornaments.

Across the valley, about 8 km away, swept up the massif of Mt. Oschten-Fischt, separated from Chugush by a small river and a pass which has the same name as the river—Belaya (1787 m). There runs the boundary between the West Caucasian limestones and the Central Caucasian crystallinics formed by granites, rula and schists. The overlaps between acid and alkaline substrates are very irregular and there is observed very different vegetation. We saw growing together plants not typical for the local substrates. The River Belaya has its source between two limestone peaks, and flowing directly to Mt. Chugush, it brings many lime-loving species down the valley. To Mt. Chugush belong two brooks. On the north, the Cholodnyj has its source at the foot of a glacier. On the west, the other brook runs into the River Belaya immediately below Mt. Fischt. The area around this spot is, from a floristic viewpoint, very rich, especially the rocks. Even to the lower zones go the species which have their homes on the ridges, both acidophile and calcicole species. With increasing elevation, the height of the vegetation goes down and at 2000 m.a.s. appear the first true rock plants.

To be continued

\* \* \* \* \*

*IRIS CALIFORNICA*—INFORMATION WANTED—A request for information concerning this *Iris* comes from Mrs. P. Harper, 219 Robanna Drive, Seaford, Va. 23696. She writes, "Just before leaving Maryland three years ago I acquired, through the Delaware Valley Chapter, some surplus seed, among them a packet marked *Iris californica* 'Pacific Hybrid Rosedawn Strain' of smaller species. I brought this with me to Virginia, sowed the seeds and more or less forgot about them until this spring (1974) when they flowered beautifully. I then got out my reference books to find out more about *Iris californica*—and failed. I do not now have the seed packet nor the list for that year. Can anyone (the donor, perhaps) tell me more about this *Iris*?"

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LOCALIZED PUBLICATIONS OF THE ARGS—Many chapters of the ARGS publish monthly reports and the Connecticut Chapter puts out a monthly publication, *The Connecticut Plantsman*. Naturally this publication and the various monthly reports are quite localized in the scope of the material contained. Sometimes, however, there appears material that is of great interest to the general membership of the ARGS which should have been printed in the ARGS Quarterly *Bulletin* for overall circulation.



## NORTHWEST TRAVELERS

MRS. G. W. DUSEK, *Graham, Wash.*

Since venturing an account of the behavior of Pyrolas as I know them, I seem to have acquired a mild reputation as something of an authority on the subject, which leaves me feeling much like the gentleman who maintained that reports of his death had been vastly overrated. In subsequent correspondence with our editor, I seem to have horrified him by suggesting that my Pyrola, at least, had earned membership in the infamous invasive club. Now to me, a plant which I have been arguing with over a plot of terra firma for years, but which keeps coming back with the persistence of a meal of stuffed peppers, is a plant that is asking for membership in the club. The editor is of the opinion that I am "perhaps the only person in the world to think so." So I've stuck my neck out even further and commented on the antics of a few more of our garden's inhabitants, some of which are apparently quite sedate in other gardens. Here their joyous revelries as they live up to their potentials cause them to cover quite a lot of territory, leaving me rather undecided as to whether I have them, or they have me.

In a land where it is not unusual for coyotes to promenade the pastures at noon and give their unexpurgated opinion of hot fences at night, where a magnificent buck deer spent his summer showing the ropes to a motherless spotted fawn and where an eagle lounged on a boulder in the rock garden, then decided to pursue the barn cat on foot, it seems small wonder if some of the plants should behave in a manner not always matched in other gardens. If your favorite problem child appears herein in an unexpected light, rest assured ours is not a never-never land, but that given the proper set of circumstances, the same thing can happen in yours.

When we fell in love with a view of Mt. Rainier and a small lake across the fields and neglected to look at that item of utmost importance to a gardener—the soil—we started a decade of gardening in a fashion to make the experts throw up their hands. Alas! What was underfoot was hardpan and rocks, along with the debris of a succession of hardscrabble farmers. I do not hoe, spade, plow, spray, nor turn compost. I have been known to let manure age while I had lunch before it was planted. I gave up on weed killers after an extremely cautious trial use on some dandelions was followed a year later by very healthy dandelions and a group of *Abies grandis* that looked as if Salvador Dali had been at them. Our use of commercial fertilizers would cause the companies which sell them to go broke for lack of business.

When I look out at our extensive gardens now, it is hard to visualize the mess of stumps, logging slash and brush with which we started. One day when I was hauling away at a tangle of trailing blackberry vines under a big Douglas Fir and wishing that one of you good New Zealand gardeners would let go of the other end, I came across some meager wisps of *Linnaea borealis*. Separating one from the other was no mean feat. I feared lest the poor waifs depart this vale of tears. Ha! All they wanted was a leg up and

away they went. Now they cover an area about the size of a house. On one side they met and are gradually conquering a patch of Ajuga. On other sides they are drawing up battle lines with Wild Ginger (*Asarum caudatum*) and False Lily of the Valley (*Maianthemum dilatatum*). Linnaea crossed a sawdust covered plastic path in a wave of shining green and is continuing on in an avalanche across the other side. Since it is an over-the-ground traveler, detouring it around rather than over the top of neighbors is not too difficult. Though easy to pull out, I deplore the necessity of such stringent measures.

*Asarum caudatum* is equally aggressive, but if it cannot make way over the ground it is not averse to modest forays somewhat below the surface. In a remarkably short time it covers great patches. If this were not enough, our vast armies of absent-minded ants drop innumerable seeds about, thus giving rise to yet more of the fragrant colonies. With all its traveling abilities, however, it cannot hold a candle to *Maianthemum dilatatum* (False Lily of the Valley). Like its namesake, it favors the sneaky underground approach but with an unequaled maze of matted roots. Try as I may, I find it impossible to evict from heavy soils.

Another underground invader capable of conquering territory a yard or more at a clip is Salal (*Gaultheria shallon*). Others may praise it as a choice ground cover of six inches to a foot. For us it is more apt to approach 3 to 4 feet and it takes a stout man to pull up straying shoots. It can make a solid, impenetrable thicket. I once walked through a closed tunnel of it that was well over my head. Getting it and the equally aggressive *Mahonia repens* and *M. aquifolium* to stay in bounds is no job for the weak or timid. The spines of the Oregon Grape add spice to a knock-down-drag-out battle with it.

On a smaller scale but equally inclined to romp off is the Starry Solomon's Seal (*Smilacina stellata*). This one also rattles around underground, soon making oversized patches. While portions of the rather stout roots may be pulled, other parts invariably duck down or become involved with tree roots, making complete eradication difficult.

Delicacy is the watchword for our native Bleeding Heart (*Dicentra formosa*). But it is this very fragility that makes it king of all invaders. Once in, subsequent attempts to pull or dig it only cause it to fragment and each smidge of root promptly sets to work multiplying itself. There are dark forms and also a white one which are equally troublesome. Moreover, they have no qualms about intermarrying and the progeny are the dusty rose of the type.

Smaller still is Star Flower (*Trientalis latifolia*). Popping up in all manner of spots, is soon fills the ground with its curious tangle of knot-strung roots which look as if some mischievous underworld kitten had been playing with them. It makes a nice ground cover for the taller daffodils as it comes up after they have finished blooming. When it starts to look ratty, I snatch the tops off. Though far from mature, they take no offense but come again the next year in larger patches than before. Tolerable in the woods garden, they are a real pain among the smaller fry of the rock garden.

Many of our Pacific Northwest natives have earned a reputation for being downright opinionated about accepting new bed and board. Once



established, they can be just as obdurate about leaving. One of these is the charming *Cornus canadensis*. I once made the mistake of getting it started under a dwarf Rhododendron on the rock garden. Though the error of such a move was soon apparent, correcting it proved another story. Since I am making no real progress, I've decided it looks rather nice there after all. It is easier to build a new rock garden than argue the point.

Even harder to dispossess is Vanilla Leaf (*Achlys triphylla*) though it often grows in a more open manner so that plants under it are not discommoded. Perhaps its difficult ways are a reaction to the botanical name it was saddled with—*Achlys*. Why anyone would give a plant a name that sounds like an asthmatic Pekinese, I do not know.

Violets often seem to have earned bad reputations. Though our native crew are rather modest in their demands and even the maligned Confederate violet (*Viola priceana*) could do no better than fill a water bucket with the progeny of a decade or so, I have been doing a running battle with two others of the tribe. Neither *Viola rosea* nor *V. labradorica* are mentioned as being invasive. Both are frequently offered as plants or seed. Here they take off with the abandon of a pair of Spock-marked kids who never have been told, "No!" They plant their feet as obstinately as a pair of army mules, then proceed to produce a population explosion to rival us humans. I pull them out by the wheelbarrow load, never really getting ahead of the game for they thrive on contention.

Regardless of sun or light shade, gravel, poor or rich soil, the elfin Fairies' Thimble (*Campanula cochlearifolia*) takes off joyously. Willy nilly, I have them everywhere. Inadvertently a white one got into my clump of *Gentiana acaulis*. Plucking only encouraged it so I sat my bones down with the clump in my lap. Then I spent an hour or so taking the mass apart root by root. Each *Gentian* crown was reset separately in a new bed. Somehow an infinitesimal scrap of the blasted *Campanula* was missed. It has parlayed itself into a patch large enough to lounge on though it is doubtful if that would slow it down any. Now I am looking askance at a two-year clump of *C. pilosa*. Methinks it is time to grab it by the coattails while they are yet in sight.

Where I grew up in the midwestern U.S., ferns were a rather finicky lot. Here they enjoy our moist conditions and come into their own. Two, Lady (*Athyrium filix-femina*) and Sword (*Polystichum munitum*) are rampant spreaders by means of their spores. Useful in the woods garden and charming as babes among rocks, neither should be admitted to the rock garden for they can wedge their roots with unbelievable tenacity. When you consider that Sword Fern can root firmly enough to support the weight of a full grown woman in a hand over hand scramble up a steep bluff, you will not hesitate to pluck the sweet young things from your rock garden. Lady Fern roots are no less vigorous but the tops are so fragile they offer no handhold to pull them from their moorings making it twice as imperative to catch them while small.

For any doubting Thomases who do not know Bracken Fern (*Pteridium aquilinum*) as we know it (I've seen it offered for sale!) consider the following: I have ridden horseback into thickets of it so high I could not see over it and

so thick as to cause me to become confused. Discretion dictated giving the animal her head so that she might find our way back. Here they do not usually grow quite that tall yet each member of the family has at some time become temporarily lost in extensive patches of Bracken that towered over his head. Pulling it slows it down eventually but carelessness in this pastime is good business for the bandaid company.

Oak Fern (*Gymnocarpium dryopteris*) rambles about quite like its bracken cousin. The only reason it covers less ground is that its legs are not so long. The slender roots wedge themselves into quite small spaces making a change of venue virtually impossible. For the rock garden the size is right but the temperament is not.

There you have as fine a lot of travelers as you are likely to come across. Each is as two-faced as Janus. They are quite capable of taking ways. Grow them if you must, but beware!

## INFORMATION EXCHANGE

A. J. BROWNMILLER, Collator, *Gibsonia, Pa.*

Practical experience is the only criterion with which to determine the success or failure of a rock plant in any given area. William R. Van Dersal made this abundantly clear in the *ARGS Bulletin* Vol. 32. No. 1, when he stated, "no . . . instruments are as accurate as the plant itself in determining where the plant will survive or where it will fail." The reference also suggests, "the author would be pleased indeed to learn of experiences (from one growth region to another) from other rock gardeners." Such an exchange of information would be most helpful in securing a body of knowledge about difficult plants which no amount of theorizing or guessing can determine beforehand. Besides there are always exceptions to the rules of generic mavericks or fortuitous cultural practices, not to mention marginal or overlapping growth regions, some of whose inhabitants can only be deemed successes or failures by actual experiences.

For example, "plant growth region" No. 27, unlike regions 1 and 2, may or may not be favorable to alpiners from the Himalayan area with inconclusive evidence now available; likewise the countries of the Near East; Iran, Turkey, Iraq and Lebanon. Since these regions have a wealth of possibilities, practical experience alone will determine whether plants from these regions can be grown on the Eastern Seaboard. Then, too, the well-known *Arabis blepharophylla* which should not grow in the east, will thrive for several years and will even seed itself. One hesitates to mention alpiners from other growth regions with which one's experience has not been sufficiently prolonged for fear the oncoming winter will decimate a distressing number of plants. In view of the uncertainties concerning many desirable species, any information of successful culture would be most helpful to others who might by trying to grow these plants. Trial, observation and perhaps ingenuity should not go unrecorded under the bushel basket of one's modesty if we are to extend the range of our so-called finicky alpiners from other growth regions.

While soil conditions may be approximated with those of any other re-



gions and with temperature more or less in the same range, the deciding factors that decimate our non-endemic species outside the alpine house may lie in the rainfall, the humidity and the intensity of the various components of the sunlight, to which plants have adapted themselves. Therefore the extremes of rainfall with its corollary humidity, will define in part the limits within which one can grow a species. The 15 per cent increase in rainfall in some sections of eastern U.S.A. in the summer of 1974 resulted in lush growth of most of the standard alpiners, *Gentiana verna* sending up a score of individual stalks in a tea saucer size clump whereas it usually barely managed to hold its own. *Lobelia cardinalis* seeded itself all over the place in abandon, *Gentiana decumbens* type did also, not to mention other notorious self-sowers. *Androsace lanuginosa leichtlinii* expanded thrice its size, however with less blooms from plants in partial shade. *Pulsatilla vulgaris* showed its dislike for moisture by turning black on its periphery prematurely, particularly in the plants whose crowns had been too deeply set. Presumably the delimiting factor in most plants in the North Temperate Zone is not excessive rainfall, provided the requirements of drainage and soil texture are met. The converse, of alpiners suffering from too much summer rainfall is more remote but still a factor.

Among the species of familiar rock plants that are averse to copious rainfall are the *Asperulas*, *A. suberosa* and *A. gussonii* surviving the wet summer of 1974 only under a peanut butter jar cloche while *A. puberula* and *A. pontica* succumbed in July when they had been forgotten during the downpour. To the adage, "When in doubt don't water," can be added, "if forgetful keep on the cloches." While the two aforementioned *Asperulas* had grown to saucer size with nary a brown fringe in two years, it is still too early to predict they will be permanent in a region with 35 to 40 plus inches of rain. However, success with plants such as these from someone, somewhere would stimulate gardeners to grow a wider variety of plants for the enhancement of their gardens. Any exchange of information would be most helpful.

Now for a modest but heartwarming payoff. A request has been made for the source of seeds, cuttings or plants of *Phlox* 'Chatahoochee', a most floriferous and beautiful American endemic. No trek to the Southland has been reported, no seeds, cuttings or plants seem to be available; a calamity not as great as if *Gentiana sino-ornata* or *G. farreri* had been lost forever, but distressing and unwarranted for an American plant. Then the unexpected happened, due to an article in the *Bulletin* which had requested information concerning this particular *Phlox*.

It came not from the banks of the Chatahoochee nor from a collector in the North but from none other than an ARGS member in Vienna, Alois Kober, who had read the article. He said it was commonly grown around his native city, he himself having distributed over a hundred of his cuttings and his plants. Evidently it is not a long-lived plant but is easy from cuttings. We hope we will get a start of this plant from him in the near future.

If anyone has any unresolved difficulty with a species, the Exchange might be able to get the necessary information from the wealth of experience lying dormant in the minds of ARGS members.

## ADDENDUM

It is particularly rewarding for a contributor to the *Bulletin* to get some small word of approval for his efforts, if not commendation, a kudos which belongs mostly to our Editor for his astute guidance in inspiring prospective writers to meet the challenges of their subject matter. One such letter has been recently received, some of which unfortunately must be compressed due to space limitations.

Not only has the writer the enthusiasm of a true rock gardener, but also the generosity, the adeptness, the zeal not only for spreading the word but the seeds also, and finally the willingness to be helpful. For the benefit of our members, including the Directorate, the collator has been keeping a file on both our correspondents and the species they have mentioned, with the view, if the idea is sound and spreads, to keep it permanently for difficult and little-known plants. The letter:

"Dear Mr. Brownmiller,

"Enclosed you will find cultural notes on some of the seed I have sent to the Exchange this year and some of the plants I particularly enjoy growing.

"I was very interested in your article in the *Bulletin*, 'Desirable Strains, Anyone?,' and am so pleased with the *collator* idea. I believe one of the most important functions of the ARGs is to teach. Reading the experiences of other members is an excellent way to learn and heaven knows the learning process is never over when it comes to growing all of these treasures. I am particularly interested in the beginner who is frightened silly by the Latin names and is in a quandary as to how and where to place a plant.

"It is possible some of the species I have written about may be so well known they will have little interest to others. It has been impossible to know what information is wanted. With a collator available the situation will be helped tremendously.

"Living a hundred miles from Seattle I seldom get to an ARGs meeting and I feel I do very little to help pay for the activities of the group. I am enclosing a few stamps to help the cause. If there is anything else I can do, please feel free to call on me. I have many, many books including *The Royal Horticultural Dictionary of Gardening*, all five volumes. I would gladly do some research for you. I say this 'alpine fever' is a mild form of insanity but I have not yet been locked up.

"Sincerely yours, Berta Drew, Rt. 2, Rochester, Wash. 98579"

*ANDROSACE LACTIFLORA*—Primulaceae:

An easy annual carrying many panicles of tiny white single flowers which are spritely in effect. While all the other species are snug in their especially provided homes, this one seeds itself and grows anywhere in great glee. Its foliage, in small rosettes, has attractive design and the scapes are about five inches.

*POTENTILLA CRANTZII PYGMAEA*—Rosaceae:

This is not a mat-forming *Potentilla*. It resembles a tiny bush with many



stems from 4 to 6 inches, yellow flowers, an Arctic alpine appearing in North America, Europe and Asia. It does not require scree conditions. My plants grow in full sun, bloom generously from late April into June when I cut them back. By mid-July it is blooming again. My seed germinated in 30 days.

*SAXIFRAGA BRONCHIALIS AUSTROMONTANA*—Saxifragaceae:

Two to six inches, pale yellow flowers spotted purple, for scree, protect from the noonday sun. In North America, from Canada southward through Olympic and Cascade Mountains to northern Oregon. From the Trachyphyllum section of Saxifrages, Farrer's *The English Rock Garden*, Vol. 11, page 254, "type in all countries varies as widely as do saints and republics too, . . . Its especial value in the rock garden lies in the fact that it bronzes to a rich metallic tone in autumn and keeps its new splendor undiminished throughout the winter."

I consider this one of the most satisfactory and beautiful plants in my garden where it has been thriving for the past twelve years. It spreads about an inch a year . . . can be divided . . . is in a scree, the main body shaded by a rock. Illustrated—Dr. Rickett's *Wild Flowers of the U. S.*, Northwestern States, Vol. 1, Plate 61.

*SAXIFRAGA COTYLEDON CATERHAMENSIS!*

Another of the most beautiful and satisfactory plants in my garden. Its enormous silver rosettes are attractive every day of the year. From late May to mid-June its white, heavily spotted red blossoms are carried on arching red scapes from 9 to 19 inches long. My four-year-old plant blooms lustily each year in spite of our heavy winter rains and temperatures which have dipped to 4 below zero F. It is planted in full sun with scree conditions with medium sized rocks behind it so the plant faces north. I have incorporated agricultural lime in the soil. Each plume with its mahogany red stem, white-spotted, red-yellow stamened blossoms is astonishingly beautiful.

Farrer, in *The English Rock Garden*, "The plant is not monocarpic but each flowering rosette invariably dies. The rosettes are so tightly borne that this occurrence is scarcely noticeable, as any brown spots are soon covered by adjacent foliage."

Hills, in *The Propagation of Alpines*, "If seed are sown in July or August, freezing is not necessary. If sown Jan.-Feb., freeze ten days, then remove to cool house. Scatter seed directly upon stone chips for it will be sucked down by water."

*ARMERIA MARITIMA 'LAUCHEANA'*:—Plumbaginaceae:

I personally like this *Armeria* much more than the other species which I think have a somewhat drab mauvish-pink colored blossom. This species is a good clear rose-pink bloom which is effective with the gray-green foliage. Grown in full sun one has an attractive plant showing color from April to November provided spent blossoms are removed. I allow the early blooms to set seed. Can be divided easily, cuttings can be made, and it crosses with

other thrifts in the vicinity. Farrer says that it is an improved form of *Armeria maritima*.

*ERYTHRONIUM TUOLUMNENSE* 'PAGODA'—Liliaceae:

It is a tuber, 1½ inch, yellow hybrid of *E. tuolumnense*. Syngé, *The Complete Guide to Bulbs*, page 123, "It has light yellow-green mottled leaves . . . one of the best of the genus . . . increases by offsets into large clumps if in a suitable situation. Grows naturally on damp shady banks of rich leafmold. 'Pagoda' is a vigorous hybrid with a stout stem up to 1½ ft."

Syngé on propagation; "Erythroniums can be raised from seed but are sometimes slow to germinate and may take up to five years to come into flower." Emery reports seeds may take up to 201 days to germinate but percentages are good.

An outstanding plant which has been in my woodland garden for four years. It blooms in late March and carries many flowers effectively for three weeks.

*GEUM CAMPANULATUM*—Rosaceae:

My original plant was selected in the Olympic Mountains and is a very neat form of *G. triflorum*. The very dark green evergreen pinnatifid leaves are almost fern-like. While the color of the flower is difficult to describe it can be approximated to a soft shade of copper-rose which is surprisingly effective adjacent to the vivid orange and butter yellow of *G. x borisii*, *G. rhaeticum* and *G. montanum*. The scape is from 6-8 inches long and after the blossom fades the seed pods tell us why its common name is "Grandfather's Beard."

It is very easy from seed, germinating in about two weeks when sown in February. It is also very easy to divide, not particular as to soil but does its best in full sun. The illustration in Rickett's does not do justice to its color.

*MECONOPSIS GRANDIS*—Papaveraceae:

Hills's, *The Propagation of Alpines*, "Sow in February in sandy peaty soil, germination in 2-3 weeks. When two leaves develop prick out into boxes, leave at temperature at 40-50 degrees, then place in cold frame. In May pot in leafy soil, place in shaded peat plunge. Or plant in September or the following spring."

Farrer in *The English Rock Garden*; "A yard high perennial, handsome flowers 4-5 inches, clear blue to rich violet to slatier tones of blue, from western Sikkim. The beds should be made in a sheltered place in a bay of shrubs; in leaf mold, plenty of rough sand and containing  $\frac{2}{5}$  coarse grit for perfect drainage."

My experience with seed; planted February 1968, germinated March, '68, planted direct in a bed June, '68. Mid-April '69 planted in garden. Bloomed May, '69. In 1974 the plants are husky and bloom generously May into June.

Obviously I am enthused by the *Meconopsis* not only because of its gorgeously beautiful blue blossoms but because of its reliable hardiness. I have one group planted in a bed which has suffered through two different floodings by my nearby river. How they could survive after being under two feet of rushing water is beyond comprehension.



## THE GREAT BASIN PHENOMENON

ROY DAVIDSON, *Seattle, Washington*

(Summer of '73 saw a small party set out to study the flora of the perimeter ranges of western North America's Great Basin, a dominantly desert land, high in summer heat and low of winter cold, with only a token rainfall in some areas and snow at considerable elevations. This vast territory has proven of remarkable floristic interest since its first investigations less than a century and a half ago. The party was hosted in Nevada by Margaret and Loring Williams and their son, Steve, a geologist, who served as our guides to this part of the exploration.)

### II. THIRSTY DESERTS

Probably the single most adventuresome day of the eighteen was the first of several spent on the desert floors. (For details recall Bob Woodward's account, *Bulletin* Jan. '74.) We traveled eastwards of Reno about 240 miles, covering the ups-and-downs of the tilted fault-block ranges and valleys between them. Some of the depressions held streams; others were nearly sleek, glistening with eerie purplishness in the intense sunlight, each with its characteristic plants, even to the saline playa and stony, baked slopes.

On the mountainsides were the predictable things, Phloxes, Astragali, and Eriogonums, quite a few of them in ripe seed here at elevations between 6000-7500 ft. *Haplopappus acaulis*, which we were to follow northward to Idaho, caught our attention as an attractive little silver-leaved golden-flowered "day's-eye". On Austin Summit (7484 ft.) we came onto a most curious association of soft-leaved subjects, including such shrubs as a rose and *Symphoricarpos*, with herbs such as *Mertensia* and *Agastache* (hyssop); this was unique only in its placement, here where the rule is hard, waxen, gray or spiny, or all, at once. This relief oddly softened the day in a north-facing swale reminiscent of the Palouse Prairies of Washington, and strangely familiar in the Wasatch of Utah but a few days hence.

Opuntias and other cacti with many another spined, prickly companion seemed much more appropriate to the parched landscape, *Pediocactus simpsonii* familiar amongst them: this barrel extends to eastern Washington, British Columbia and Idaho. Here, however, it seemed congested or compact, even for a squat cactus, so that a maximum of its spines were evident and little of its skin shown through.

The goal of the day was indeed a worthy one, an enormous doughnut-shaped tufa formation standing moundlike about forty feet above the desert floor and covering an acre or more, with a deep water basin in its crown, surely a formation resulting from a vast limewater spring submerged in a now-vanished prehistoric lake bottom. The water flow is today reduced to but a trickle, and that seeps out the lowermost side at about twenty feet below the colossal rim to water a thin field of alfalfa. The surface of the

tufa-dome, worn by frosts and mellowed by lichen growth, supports a most unusual group of cushion plants: an Artemisia; two Phloxes, *P. covillei* var. *tumulosa* and *P. griseola*; *Aster scopulorum*; *Leptodactylon* (*Gilia*) *congesta*, and a Tetradymia rising above as a loose bushlet. But the sensational mats of *Lepidium nanum* were nearly overwhelming, or was it the heat and intensity of the sun? We were consuming quarts of water to counteract the effect.

Though but one of many springs seen, this was assuredly the most spectacular. This portion of the Great Basin has an abundance of subterranean water in its underground cisterns, but it only "seeps" or "springs" when forced to flow over shallow or exposed bedrock. *Argemone munita*, the lovely prickly poppy, was everywhere, but especially good along the shoulders of the roadways where runoff from the surface gives it full life.

The day following was one of comparative rest, much appreciated. On Mt. Peavine (7800 ft.), very near to Reno, we gathered seed of those few things already ripened: several Eriogonums, among them the endemic *E. rosense*; *Lewisia rediviva* var. *minor* (overlapping ivory petals on a very compact plant); *Fritillaria atropurpurea* (and a few hard-earned bulbs); and no less than three Phloxes, *PP. austromontana* var. *prostratum*, *hoodii* and *stansburyi*, the last-named, a lovely warm pink, was to become a familiar one in days to come as we moved further out into desert ranges.

Mt. Peavine is the subject of an interesting study in ecology in which Margaret is participating. Now bare of its trees, it was nonetheless a densely forested mountain, denuded by the need for shoring-timbers and rails in the mines of the area. Just as an over-grazed pasture cannot rejuvenate itself, so the over-harvested mountain was unable to regrow its trees and is now subject to replacing the original cover of conifers with an entirely new sort of flora; a good many species never before recorded there are now reported for the area.

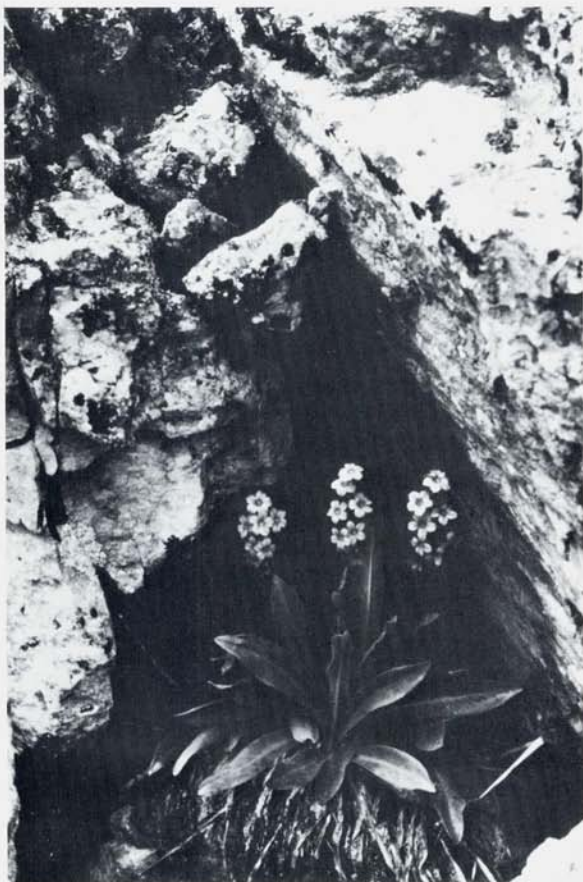
In the cool of the evening we drove north to Pyramid Lake for a cook-out and to watch the desert sunset and afterglow play mauve and apricot colormagic on a sere, stony landscape reaching far off into many mysterious, receding directions. At this time of day the desert is quite at its best. One of the largest of the Great Basin waters, Pyramid Lake terminates the Truckee River which has its rise only a short distance above in the spectacular jewel of Lake Tahoe, sitting aloft in the summit of the Sierra Nevada. It is about 32 miles in length and 12 at its broadest and covers about 120,000 surface acres, but as the thirsty desert, together with the civic and agricultural demands continue to deplete the river, the lake is receding at an alarming rate. Anahoe Island, its breeding ground of the white pelican, is threatened with becoming a peninsula, thus endangering the safety of the wildfowl. On the north shore stands a curious white pyramid-shaped limestone formation some 475 ft. high, giving the name. Much tufa is visible along the present shores and those ancient ones so evident on the barren mountainsides above. Several interesting small plants grow in the present shorelands, including a tiny *Oenothera* species.

Southwards next day, in against the sheer east face of the Sierra Nevada, we found the desert almond, *Prunus andersonii*, in ripe fruit and making a most attractive dense shrub or small tree. In a wash-out in the Carson Valley



it had struggled, only to attain a quite pitiable stature. Two other notables along this area were *Iris missouriensis* still flowering in damp meadows at 8000 ft., and *Penstemon bridgesii*, the first of several scarlet ornithophilous species frequent in the Great Basin and southwards into Mexico. A neat *Holodiscus* was embellishing small tidy bushes with typical creamy froths of blossom. A subsequent research discloses that the one found here (the range of the genus being British Columbia to Peru!) is to be known as *H. microphyllus* var. *boursieri*, and we found that it extends eastwards into the desert ranges. In cultivation this has proven to be a tremendous satisfaction, very tidy, very floriferous, very good indeed.

The heat of the desert was oppressive and we soon climbed up to near 10,000 ft. in the Saddlebag Lake basin, just east of Yosemite and at the foot of glaciers off Mt. Conness (12,556 ft.). Such is the contrast of the Sierra rim of the Great Basin: *Kalmia*, *Salix nivalis*, *Phyllodoce* and *Cassiope*, *Gentiana newberryi*, *Lewisia pygmaea* (many a good pink), two species of



*Primula parryi* in southern Utah

the *Dasanthera* subgenus of *Penstemon*, *PP. davidsonii* and *newberryi* and the hybrid of them. These and many more good plants enhanced the green meadowland between the flows of icy streams. (Mt. Conness is the type station for *P. davidsonii*.) This is all within one of the southernmost and largest of the arctic-alpine areas of the Sierra, chilled by glaciers, so of course when we descended again, the heat was all the more unbearable.

In a pleasant and cool area of the lovely June Lakes resort settlements, we came onto a lovely stand of one of the California leopard-spotted lilies, *Lilium kelleyanum* (*L. shastense*) in a grove of aspen; these are becoming all too rare. We had passed over a series of ridges and depressions over vast glacial deposits from times long gone, and as we topped-out on the last, the stark white majesty of the White Mountains loomed dead ahead against the eastern sky at what seemed incredible heights, so close at hand they were, and self-explanatory of their name. And then we plunged into the furnace of the Owens Valley to restock fuel, water and food for their ascent. This valley, a very long and narrow, and deep, fault-trench at the east base of the Sierra, once contained a vast lake, long ago receded to mere puddles, and those drained off to water arid southern California, much to the devastation of the valley.

The White Mountains, one of the Great Basin's highest and driest ranges, is a formation of a sort of forbidding, yet fascinating grandeur, much of it dolomitic limestone and quite unlike anything else remaining nearby. For one thing, the range is the home of the Earth's oldest living trees,\* good enough reason for going there, and we found others. Our dry camp was beneath a venerable ice-blasted *Juniperus osteosperma* (Torr.) Little, and a surprising number of flowers surrounded us, not in profusions, but to be counted; a *Swertia*, *Penstemons* and *Phlox stansburyi* among them. Here the latter was especially appealing, its huge, long-tubed, pink flowers, reminiscent of half-size *Rhodohypoxis*, topping inch-wide, needly tufts of leafage.

The Schulman Grove of Bristlecones at 10,000 ft. (see *National Geographic*, March 1958) contains the first of these trees to be dated as over forty centuries in age, "Pine Alpha" being the very first so-counted. It is rather sobering to stand in its quiet presence and realize that it "had been growing on this slope for 500 years when Man invented the spoked wheel; it was nearly 1500 years old when Moses led the people out of Egypt, and 2800 years old when Rome fell" according to the Forest Service reader-board. The Methuselah Grove with the very oldest trees, one dated as 4600 years, is a four-hour loop-hike from this point to the east in a calcareous region of less than ten inches annual rainfall. Recently these oldest trees and all others of their ilk without resin glands in the needles have been segregated as distinct from *Pinus aristata* and given the name *Pinus longaeva* Bailey (see *Ann. Mo. Bot. Gard.* 57:210-249). The area has a small cover population of lesser plants, among which *Salvia dorrii* var. *argentea* was prominent in blue and silver.

Climbing further, a saddle on the spine of the White Mountain dragon bore cushions of the tiniest of *Lupinus breweri*; it appears the rule that all plants of this range are smallest, the woolly ones woolliest, the colors the most intense. Bright blue "cloverheads" of lupine flowers were appressed right





*Pinus longaeva*—Not the oldest but the largest—37 feet in girth—Age over 1500 years.

Sharon Sutton

into the silver-downy mounds—a total delight, and with seed capsules paling in promise. At 11,000 ft., we reached the Patriarch Grove of trees, including the largest known bristlecone pine, 37 ft. in girth near its multi-trunked base, yet but a youngster of a mere 1500 years! In spite of the combined forces of extreme aridity and extreme desiccation, it had been able to grow far faster than most of its sort. This area was carpeted with an *Astragalus* so tiny one had to belly-flop to see it, a slender thready little one with silvery-gray, minileaves and lilac mini-flowers; we took this for *Astragalus kentrophyta* var. *implexus*.

A blinding glare of white and other colors of flowers on silver cushions in the high scree of white dolomitic limestone above (12,000 ft.) might be difficult to imagine, the brilliance that of a noonday midsummer beach, yet set two miles in the sky! Two Phloxes, two Drabas, a small red *Castilleja*, *Linanthus nuttallii*, *Hymenoxys cooperi*, *Lesquerella kingii*, *Eriogonum caespitosum* (some a brilliant raspberry) and other miniatures contributed to the jewel-box population here, certainly in one of Nature's greatest achievements. Some few were past flowering and some seed was ready for harvest. From this vantage the Sierra Nevada was in splendid view, thirty-five miles southwest, effectively entrapping most of the moisture, the resulting drought responsible for the tiny flora about us. We were looking directly at the 14,000 ft. Mt. Whitney cluster of peaks, topping all in the contiguous United States.

Further east, we continued for several days of travel over the high valley floors, at elevations well over a mile, and passed through large areas of the Joshua tree, *Yucca brevifolia*, and through the deserted sites of ghost towns of the mining booms (their people away with the winds), some now only beautifully laid, weathered stone foundations which would make lovely

planted dry walls except for a lack of water, now as always. On dry roadsides *Eriogonum inflatum* with its odd stems like living green clay pipes never failed in its curiosity.

The ascent of 11,260 ft. Troy Peak for the elusive Primulas and columbines promised was another of the memorable days. From a waterless camp "east of Tonopah", we set out at a pale dawn, turning off highways onto roads, then onto mere tracks, finally in a trough of clattering talus (a stream bed!) and up a steep, now dry gulch. Troy Canyon is an open forest mainly of aspen and pine; as in the White Mountains, both *Pinus longaeva* and *P. flexilis* were present, as also piñon, juniper and an Abies, making a total of five needle conifers, plus the related Ephedra, curious leafless stick-plant. Other shrubs here included as many of the interesting ones as were to be seen in any one place, *Grayia spinosa*, *Purshia tridentata* (antelope bush), *Philadelphus microphyllus*, the solonaceous *Lycium andersonii* (a food plant of primitive peoples, with tiny hard gray leaves and quantities of tiny bland chili-like capsules), a rather pretty apricot-colored Ribes, *Mahonia (Berberis) fremontii* (glaucous, graceful and very spiny), and *Rhus trilobata* (from the gummy red fruits of which can be made a refreshing "pink-lemonade"). Rosaceous shrubs were numerous, including *Potentilla fruticosa* (a species of all northern continents) and *Holodiscus*, both as in the Sierra; *Amelanchier pallida* (a food plant); a rose, *Cowania mexicana* and *Fallugia paradoxa* (both with long, silky, glistening tails to their seeds, lending ghostly luminescence in desert moonlight); *Chamaebatiaria millefolium* and none other than *Petrophytum caespitosum*, cloaking one cool limestone crumble. An additional rosaceous subject, though usually a mere shrub, growing slowly to a small tree on stony ledges, is *Cercocarpus ledifolius* (widespread in dry western ranges).

From the end of the track at an abandoned mine shaft, it was a four-hour "walk" up an easy incline, but over loose detritus that never would stay put underfoot, and then we arrived at the broad band of limestone cliff that crowned the mountain. Here in cool clefts grew the charming little *Primula nevadensis*, but we never turned a sign of the Aquilegia, said to be of all colors, one thus akin to the vari-colored *A. scopulorum* var. *perplexans* of the Charleston Mountains near Las Vegas, or the same. We spied one of the fern treasures of the cool limestone, *Pellea breweri*, as well as the ever-present (at high elevations) *Oxyria digyna*, and refreshed ourselves by chewing it; the mild acetic acid reaction quite pleasant to a parched mouth.

Returning to the valley, we were further refreshed at being able to soak aching feet in the good cold stream at one of many shallow fords of its waters. Penstemons of many species brightened somber hillsides and copses with scarlet, purple, lilac and blue; then across a stretch of dusty desert and across a spine of the range via a low divide to one of the most delightful campsites, set beside a broad rush of cold water passing through red sandstone cliffs (*Echinocereus triglochidatus* var. *mohavensis* nearby) and deep green groves of chokecherry, *Prunus virginiana*, yet another member of Rosaceae present in the Great Basin; its nearness seeming always to give promise of songbirds. It is widespread in western North America. This part of the Great Basin has just such a stream in every side-canyon, yet none last



for long exposed to open desert conditions.

We were successful next day in finding a few seeds of the unusual *Lewisia maguirei* adjacent to *Fritillaria atropurpurea*, *Calochortus nuttallii* var. *brunonianum*, *Physaria eastwoodiae* with its gray felt "pen wiper" rosette, a neat blue *Scutellaria* only a few inches high yet broad in colonies from thickened underground stolons, and *Swertia albomarginata*, a neat one with fritillary-marked, purple-brown and yellow-green flowers. Below on the edge of the roadway itself, the attractive small *Yucca gilbertiana* is endangered by blades of the road-grader, though not often, about once a year, at most.

A mid-day search of certain "calcareous desert outfans" failed to turn up one of the species we most wished to see; *Polygala subspinosa* would not reveal itself to us, but perhaps our hearts were not really in it, at high noon! After lunch in another of those stream-washed campsites, and a swim in the cool waters, we found still another of the Basin's rosaceous inhabitants, *Peraphyllum ramosissimum*, a Stone Age food shrub, with fruits as tiny apples, not unlike those of *Amelanchier*.

Quite a number of *Oenothera* had attracted our attention, though more than likely we missed most of them due to their nocturnal habit. However, near Ely we did come onto a scissor-cut flannelly one we presumed to be that which Dr. Worth had reported as infrequent thereabouts, and then we rushed on to cross a great stretch of desert by night. Camped in a roadside in ghostly moonlight reflected off the glazed marshes adjacent to Sevier Lake, another of the Great Basin's terminal cases, we dreamed of the Wasatch Rim tomorrow.

\*Dr. Wherry's determination of certain acres-size *Gaylussacia* as being the oldest living protoplasm is not disputed here, but they are not trees. Recently a report of the discovery in Taiwan of a purported 6000 year old Sun Tree (*Chamaecyparis obtusa*) has been reported.

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THE INDEX FOR THE YEAR 1974—The *Bulletin* Index for the year 1974 will appear in the April '75 issue of the *Bulletin*. The 1973 Index was printed in the issue of January, 1974. Before that, the Index on a two-year basis was printed separately and reached the members as an insert in the April *Bulletins* following the last of the two years being indexed. By printing the Index as an integral part of the *Bulletin*, the members may have it always available for reference. Inserts have a way of getting lost.

\* \* \* \* \*

THE COLLATOR—The present Collator of the ARGS is Mr. A. J. Brownmiller, Rt. 4, Box 274, Gibsonsia, Pa. 15044. Take your plant problems to him. Tell him of your successes with rare, unusual or difficult rock garden plants. Methods of culture that have proved successful should be recorded so that they may be passed on through the *Bulletin* to the general membership. Rock gardeners should also record with Mr. Brownmiller their non-successes in order that he may seek solutions to these problems for them. Others may be having the same problems. See Mr. Brownmiller's article in this issue.

## LONG BLOOM IN MY ROCK GARDEN

ANITA KISTLER, *West Chester, Pa.*

Instead of procrastinating this last flowering season, I kept a record of dates of bloom in the rock garden. At the end of each month, I noted plants that had given exceptionally good or long bloom.

The first mentioned plant is a tiny treasure, *Hutchinsia alpina*, which started blooming April 21 and was still giving a good show of white bloom on the 18th of May. Granted the stems were elongated, but as they did this they dipped along the ground and sent their tips upward. The plant still retained its bun-like appearance.

*Hutchinsia alpina* has pretty, much-divided foliage which when even not in bloom makes it a most desirable plant. Where mine grows, it gets direct sun early in the morning and then again after 4 p.m. The rest of the day it gets plenty of light and air. Fortunately my soil is neutral, so nothing but a neutral red shale chip was dug into the slope. The *Hutchinsia* is planted on the uphill side of a medium-sized rock. I am sure all its roots head for the rock and its moisture. Certainly this should be grown more often here in the East. It propagates easily from cuttings taken during the summer.

Another excellent plant is *Schivereckia podolica*. This looks like a lax *Draba*—both for its grey foliage and its white crucifer flowers in elongating racemes. It starts about April 4 and is still giving a good display about a month later.

About five years ago, I realized there were hundreds of plant names listed in the American Rock Garden Society Seed Exchange List of which I had never seen or heard. So I took some flyers, and this is one of the seeds I ordered. I will never be without it again. Today, in mid-January, I took a stroll through the rock garden to see what had heaved out with all the freezing and thawing (10° up to 65° in one day!). There sat *Schivereckia podolica* in full sun, with the lowest layer of blossoms wide open; a little early, but a most welcome sight as the snows were receding.

A long summer display is put on by *Linaria alpina*. I am not sure whether to classify this plant as an annual or a perennial. The books list it as perennial, but it moves itself so definitely around my garden that I wonder. If it is an annual, it happily seeds itself around in a delightful manner. This little mountain "Butter and Eggs" is not the pest as is our native. It has lovely glaucous foliage all year round. My notes show it started blooming the 25th of April and continued blooming until frost cut it back. In mid-summer, the stems get a little stringy, but with the shorter days of August, it tightens up and the color gets more intense. There is a pink form, but it is not the show that the usual purple and orange form makes. What more can anyone ask of a rock garden plant? It is indispensable for summer bloom in a hot, well-drained spot.

Marigolds and zinnias do not find their way into my rock garden, but there are some lovely annuals that are rock garden plants. *Androsace lacti-*



*flora*, for spring bloom is invaluable. I call it a winter hardy annual. It self-sows in the rock garden about the end of July, and by the end of August, little green, toothed rosettes are appearing. They continue to enlarge over the winter, starting to bloom about the 8th of April and do not stop until the first week in June. The bloom starts at about 1½ inches and stretches into an umbel about 5 inches high. The blossom is a little larger than *Androsace lactea*, with the same yellow eye. Lovely!

I always let the plant develop seed—collecting some for distribution through the ARGS Seed Exchange, others to give to garden visitors. When *Androsace lactiflora* is in bloom, visitors always sigh and ask, “What is that plant?” Be sure to try it. Always save a few seeds for yourself. When the little rosettes start forming, you will think of a new place to introduce this favorite. It grows well in both sun and light shade. It does not like to grow among the shade-loving Primulas.

The other annual I have to write about for its long blooming season is *Gypsophila muralis*. This is a real gem. It makes a light, airy mound of no more than 5 inches high and 6 inches across, which covers itself with tiny ⅛ inch light pink blossoms. No one is allowed to weed my rock garden. Hopefully, I can recognize the tiny self-sown seedlings emerge. *Gypsophila muralis* takes a very watchful eye as the foliage looks like a delicate grass. It takes on the wiry aspect of a *Gypsophila* later in the summer when it starts blooming, about the 4th of July. Once it starts, it blooms through the first frosts of autumn. You would usually find it still going about the 10th of October. It is not as frail as it appears.

The first year I was given this plant, I collected seed in the fall and watched and watched the seed pan all spring. Nothing ever appeared. I panicked. The donor had lost the plant, too, but nature came to the rescue! Where last year's plant had been, there were many little bits of grassy foliage. Now I relax. I just wait till the grassy growth shows, dig up some to move around the rock garden or share with fellow rock gardeners. Where does it grow in the rock garden? In very well-drained spots in full sun. Full sun in my garden is from early morning until about 3 p. m. on a July day. All my beds and rock garden are shaded late in the day by a huge maple tree to the west, far enough away that the perennial border catches the maple leaves before they can reach my little rock garden plants.

*Hypericum yakusimanum* also starts blooming about the 4th of July, but it does not last nearly as long as *Gypsophila muralis*; it only goes to the end of August. This plant does not like the hot sun; it grows on the east side of a stony slope between the rocks (cool root run). It makes a nice deciduous mat of little green leaves that are dotted across with ⅜ inch hypericum yellow blossoms at a time when there is no bloom in the shady section of my rock garden. It is perennial, I think, but if it is not, the plants self-sow, so I can always find plenty of volunteers to share when they start into growth in the spring.

One last plant has to be listed here. It is the glory of the autumn rock garden. One has given up hope that this plant will bloom this year—it is the last week in September. Then the buds open. Magnificent! It is a gorgeous, easy, fall-blooming Gentian, *Gentiana scabra saxatilis*, that iridescent blue

of the acaulis group, blooming until the first or second week of November. It self-sows—sometimes almost too heavily, but a friend or plant sale will benefit from the seedlings that are removed. A little observation will show you the various forms—upright (10 inches), splaying out (12 inches wide), or the one I love most, the prostrate form. When it is flowering there are about seven or eight branches running along the ground, each one covered with about 10 or 12 big blue trumpets, and an equal number of buds waiting to pop open as soon as one bloom closes. It blooms best in full sun, but needs an occasional watering in hot July and August.

I have a Swiss friend who always comes to visit my garden in the fall, to stand in rapture over her “Envian”. It does not bother her in the least bit that this is a native of Japan. The trumpet and the color give her the thrill she used to have as a child when she climbed the nearby mountain to see the spring gentians in her homeland.

## BACKYARD PRAIRIE II

RICHARD CLINEBELL, *Wyoming, Ill.*

In my first article, “Backyard Prairie,” I outlined an idea of the mid-western backyard community as an ecosystem. The purpose of this article is to describe some of the mechanics behind the principles, or how to actualize the idea. Once one gets the idea one wants a prairie, one is confronted with the prospect of discovering how to make it. The proposition of digging one’s plants from nature is a frightening one, prairies are too few. Happily, all (though some reluctantly) consent to some form of propagation.

I have been working with Corliss I. “Jock” Ingels, president of LaFayette Home Nursery, LaFayette, Illinois on propagating prairie plants for the past fourteen months. Working with Jock has been an enjoyable experience for me, eliminating perhaps years of study in the difficult school of accumulated experience. Using the same interrupted mist house that the Ingels’ nursery has long been using to strike roots on softwood cuttings of trees and shrubs, we have been able to root softwood cuttings of a variety of prairie wildflowers. The only prairie plant which seems to require softwood cuttings is *Ceanothus americanus*, New Jersey Tea. It seems that some kind of insect gets into the seed, so I have never seen an Illinois New Jersey Tea seedling. The orchids aside, all other prairie plants are growing from seed with some reliability.

What follows are recipes for growing a few choice prairie wildflowers. As always, the most beautiful have been the ones which have given us problems, and we emphasize the problems and their solutions.

*Sporobolus heterolepis*—(Prairie Dropseed). The prince among prairie grasses, the Prairie (or Northern) Dropseed has caused more problems than any other prairie species. *Sporobolus* exaggerates a need which we recognize for most prairie and alpine seedlings which we are growing. We grow all seedlings in frames, which are just wooden boxes set on the ground or sunk



eight inches into the ground. While frost is still about, the frames have glass storm door covers on hinges which are opened and closed according to conditions through late winter (when they are also furnished with heat lamps) and early spring. Later they are covered with snow fence which furnishes up to fifty percent shading. The depth of the frames, from the cover to the plants, is one to two feet.

The Dropseed furnishes an example of just how finicky a seedling can be. The frames face the south, and the six to eight inch strip along the southern border of the frame gets almost no direct sunlight. The frames are three flats long toward the south and two flats deep. In these frames, the Dropseed seedlings flourish only in the south-facing sun shadow. In fact, only the two or three southernmost rows of seedlings in the southernmost flat do well. Seedlings to the north simply cook. Other prairie plants appreciate shade as seedlings, but most are tolerant of 40-50 percent sunlight, and for all other species, our frames seem sufficiently similar to a rodent digging in the shady, moist floor of a virgin prairie that the plants consent to grow without much trouble.

*Baptisia leucophaea*—The cream False Indigo is doing well in several places in the frames, accepting a range of from 30 to 90% shade. The name of the game is loosening the hard seed coats which are probably an adaptation scheme to expand germination over several years, as if the plants expect to experience a seasonal climate. The dormancy seems to be a functioning of the hardness of the seed coat and not physiological dormancy. Several artificial methods are equally successful in securing good seed germination. (1) Planting *in situ* in the field or overwintering in flats yields the traditional *Baptisia* method of reproduction. A few seeds will germinate soon after planting and the rest will germinate sporadically throughout the next couple of years. Plots of seeds planted in the summer of 1973 have borne out this observation through at least one year. (2) Scarification with sandpaper works well, but only experience can show how much abrasion to administer. (3) Wet stratification (mix up half seed and half wet sand, seal in a pill vial and store in refrigerator for two months) is easiest, and seeds coming out of stratification are noticeably larger (up to twice as large) as dry seed, having taken up water in the process. Almost all the seed we sow goes through at least two weeks of wet stratification, though all do not need it. Three things to watch for are letting the vials dry out (fatal), fungi in the vials (even the rankest-smelling, neglected vials and jars are full of live seed, though; in our experience, the fungus is eliminated with the use of sterile vermiculite or by sterilizing sand for two hours in the oven) and germination in the refrigerator. We must confess that we use germination in the refrigerator as a sign of when to plant the seed in a stratification jar or vial. This is because we have two refrigerators full of stratifying seed and there is always something popping at 40 degrees F. The *Baptisia* inoculant and inoculants for all midwestern legumes generally are available at a very reasonable price from Nitrazin Corp., Milwaukee.

*Gentiana*—There are six prairie gentians. *G. puberula*, the Downy Gentian is the nicest, but also *GG. andrewsii*, *crinita*, *flavida*, *procera* and *quinquefolia* (Closed, Fringed, Yellow, Small Fringed and Stiff Gentians

respectively). *Gentiana* crossed the threshold of nemesis to routine when we started covering the flats with ordinary screen door screen. We have no idea really why it works. Perhaps the screen allows proper shade and aeration as well as preventing the tiny seedlings from being washed away during watering. The screen-covered *Gentiana* flats are placed in the frames with no further care other than a biweekly inspection. We also screen flats of *Lobelia cardinalis* (Cardinal Flower) and other tiny-seeded species.

*Lithospermum*—Puccoons are one of the nice things about living in Illinois. *L. canescens*, the Hoary Puccoon, is a very nice orange and is most abundant on rich loamy prairies. The other two species reach their optimum development on sandy prairies along the Mississippi River and in the sandy-soiled glacial moraine counties just to the north of Highway I-80.

*Lithospermum croceum*, the Hairy Puccoon, is a bright yellow and *L. incisum*, the Fringed Puccoon, is more of a lemon yellow. They are worth the trouble one must take to have them. First, Puccoons are one of those groups of plants with flowers in the leaf axils, blooming out in succession. Consequently, the seeds don't ripen all at once. Rather than repeated visits to collect seeds, we have been using nylon stockings (here a brief tribute to the mothers of the world for their resourcefulness in obtaining such things as large stocks of worn-out stockings). One can sack a flowering branch with a nylon stocking bag, tie it at the base with string and return later for the ripe seed. We also use this little trick with *Filipendula rubra* (Queen-of-the-Prairie), *Lobelia cardinalis*, *Phlox pilosa* (Downy Phlox) and *Polygala seneca* (Seneca Snakeroot).

The seeds of the Puccoon are not the easiest to grow. The most reliable way to grow them seems to be to plant fresh seed in July and water in the frames along with growing things throughout the season, store outdoors over winter and expect good germination in the first warm days of spring. Because Puccoons are difficult to transplant, they are one of the groups which we plant in individual jiffy peat pots. When they are ready to be placed in a permanent location, we plant the whole pot, being careful to tear off the rim of the pot at soil level. If this is not done, the rim acts as a wick and draws all the moisture from the roots of the plant. Most spring-blooming prairie plants germinate best the following spring if planted fresh in June and July. *Cirsium hillii* (Hill's Thistle) is another which follows the Puccoon both in germination regimen and difficulty of transplanting. *Phlox pilosa*, *Camassia scilloides* (Wild Hyacinth) and *Dodecatheon meadia* (Midland Shooting Star) are others which are best planted fresh for germination the following spring.

The parallels between growing prairie plants and alpine plants seem to be limited to the fact that the seedlings will grow in the same frame. It is probably best to plant alpine seeds in the late winter outdoors and allow the seeds to freeze and thaw alternately. However, we have found that the wet stratification treatment, and in some cases merely storing seed in the refrigerator dry, can get seedlings up all through the growing season. When one's propensity is toward greed and leads to not enough space in February for all the seed one has hoarded through the year; the use of stratification for alpine seeds seems a useful tool for expanding the planting season.



## ON THE TRAIL

A. M. S.

I am partial to single blossom flowers that stand alone, whose stems are not leafy, that look me in the eye and are fragrant. If they are from two to four inches tall, exquisitely detailed and white, so much the better! Such a flower is *Moneses uniflora*. It is widespread but a fairly rare plant of the Pyrolaceae. My experience with it has been confined to plants growing in the Pacific Northwest, in the State of Washington particularly.

My first finding of it was, of all places, at Hell's Crossing, a river crossing on the eastern slope of the Cascade Mountains on the Chinook Pass Highway. There I found, many years ago, several of these beauties within 50 feet of the busy highway. They were not in an ideal setting and I fear they are there no longer as fishermen were wont to trod the banks of this stream.

*Moneses uniflora* is sometimes called *Pyrola uniflora*. Let me quote a short paragraph from Leonard Wiley's *Rare Wild Flowers of North America*. He writes, "While the Pyrolas and Moneseses are similar their differential identification is easy enough. If the capsule splits open from the summit downwards it is a *Moneses*. If the capsule opens from the base upwards it is a *Pyrola*. A less scientific method that will delight that wonderful person, the wildflower lover, is simply this: If it has only one flower to the stem it is *Moneses*, if there is more than one blossom it has to be a *Pyrola*."

*Moneses uniflora* is therefore single-flowered. Its two, sometimes three leaves are ornate and basal, the flowering stem is leafless and the single-flowered stalk stands alone. When the blossom is in its early stages it is a demure darling and hangs its head in shyness; later when it begins to mature, it will look me in the eye—that is if I get my head down to its few-inch level. Also, it is fragrant. I wish I had the words to tell you just how fragrant it is. I will say that in the presence of this charmer, with air and temperature conditions right, and the trail-defiling tobacco smoker eight miles away, there is no perfume manufactured that can compare with it in delicacy and exquisiteness. One is transported to a world of scented bliss. Also, *Moneses uniflora* is white, though there are reports of a pink form.

Is it any wonder that I rate this flower at the top of my list? But it is not a flower for the rock garden, even the home woodland garden. It will not willingly come to you. You must go to it! You must seek it at the lower mountain elevations, in the foothill forests, in the protected places—not any more at Hell's Crossing!

I well remember a happier sighting many years ago. There was a river far below the trail; far enough below so that the trail hiker was soothed by the distant water music as he trod the trail upward, as I was. There was no torrential roar to distract me as when the river is nearer the elevation of the trail. The trees (*Pseudotsuga menziesii*) were tall and well spaced. Slanting shafts of morning sunlight pierced the natural half-gloom; otherwise the light

that reached the forest floor was filtered through the lofty branches. It was quite early in the morning and there were still bird songs to provide joyous melody above the river's somber undertones. A chipmunk, high in a noble fir (*Abies nobilis*) was chattering away but his noise was so much a part of the forest life as hardly to be noticed.

I was young and strong and had been refreshed by a good night's sleep. If all this were not enough, I had my wife, Eileen, with me and she had provided me with a good camp breakfast. Ahead of us was the exhilarating prospect of two weeks in the Olympic Mountains. It was good to be alive!

Soon the trail curved to the left around a sizable rock whose top was shoulder-high to me. Its top was nearly flat but rounded a bit toward the back. In area its top covered more than a square yard and was almost entirely carpeted with soft green moss and in the few spots not so covered multi-colored lichens gave relief to the expanse of green. Here was a natural sylvan stage majestically surrounded with towering conifers. The backdrop was most artistic—sword ferns (*Polysticum munitum*) pleasantly grouped and off center; an evergreen huckleberry bush (*Vaccinium ovatum*) a bit taller than the ferns but bronzy-leaved and with bright pink, campanulate flowers just appearing.

The actors were on the stage and seemed ready for the cue to begin the show. Front and center was a single *Moneses uniflora*, sturdy, yet delicate, half facing the audience, who stood enchanted on the trail. Back stage and scattered with exact correctness were other of these beauties. Who had set the stage and placed the actors? Surely someone who knew the art. Although it was a show without sound or movement, the stage lighting was perfectly timed, for a shaft of light moved from behind a thick tree trunk and shone directly upon the stage. The show could now begin. There was no doubt about the rapt attention of the audience. Here as in a trance were beauty, charm, delicate texture, cameo-like countenances, graceful carriage, dignity and happiness. A faint breeze drifted by and the exquisite figures bowed in unison and showered the woodsy atmosphere with heavenly fragrance, not sweet and cloying but delicate and unforgettable.

We stood there spellbound and my mind began to play with fantasy, as it often does when I am deeply moved. I had but to wait patiently for the sun to set and the moon to spotlight this lovely stage. It would be then that the Little People would come to pay their respects to these, their floral deities who so silently awaited them. These woodland sprites, would come from their daytime retreats to make merry in the moonlight, to frolic among the ferns, to disport themselves on this stage, never once to touch or in any way disturb those silent and motionless actors. I wonder—did they too, join in the festivities when no human eye was looking?

We know modern opinion, scientific manifestos, etc. deplore fantasy and disallow the existence, now or in the past, of the Little People. We realize that but a small percentage of the world's population even know of the existence of such beautiful beings as *Moneses uniflora* and if they did know of them many would degrade them as worthless. Should one such happen to pass along this trail, the little stage with its wildings would be just the place to throw unwanted cigarette packages, gum wrappers or even beer bottles.



However, science to the contrary, in the hearts of many people, especially those who love the wilderness, and know it, the Little People do exist, though never seen nor heard. To these same people such forest and mountain dwellers as are represented by *Moneses uniflora* are cherished as the wonderful gifts of nature which they truly appreciate. So, since the flowers are still with us after so many centuries of so-called civilization, and the Little People are likewise with us, though they may exist only in our hearts, is it too much to believe that each helped the other to survive? It is a nice thought!

So, good people, go to the woods, the prairies and the mountains and take fantasy with you and let your hearts overflow with love of all natural beings, actual or imaginary while there is still time. Let the wilderness into your hearts and be grateful for its gifts. Should you come upon a *Moneses uniflora* in some quiet place, please stop and assure it of our love—and should you perchance see one of the Little People, do the same.

## KEY TO 50 ROCK-GARDEN FLOWERING-PLANT FAMILIES

DR. EDGAR T. WHERRY, *Philadelphia, Pa.*

### KEY TO CLASSES

- I MAJOR LEAF-VEINS parallel; FLOWER-PARTS mostly in 3's; SEED-LEAF one: ..... MONOCOTYLEDON  
 II MAJOR LEAF-VEINS netted; FLOWER-PARTS mostly in 5's; SEED LEAVES 2: ..... DICOTYLEDON

### KEY TO MONOCOTYLEDON FAMILIES\*

- A FLORAL-SYMMETRY bilateral; PARTS basally fused: ..... ORCHIDACEAE  
 A' FLORAL-SYMMETRY radial; PARTS basally fused or free: ..... B, B'  
 B OVARY free or nearly so; STAMENS 6: ..... LILIACEAE  
 B' OVARY fused with outer-part bases: ..... C, C'  
 C STAMENS 6: ..... AMARYLLIDACEAE  
 C' STAMENS 3: ..... IRIDACEAE

\* To use key mentally insert the words here underlined, and the word usually before every adjective:

- A If the FLORAL-SYMMETRY is bilateral and the PARTS are basally fused the family is: ..... ORCHIDACEAE  
 A' If on the other hand the FLORAL-SYMMETRY is radial and the PARTS are either fused or free, proceed to ..... B, B', etc.

## KEY TO DICOTYLEDON FAMILIES

## a. SUBCLASS WITH PETALS FREE OR LACKING

A	OUTER FLORAL WHORLS free from one another: .....	B, B'
A'	OUTER FLORAL WHORLS fused below to a "dish": .....	K, K'
B	CARPELS separate: .....	C, C'
B'	CARPELS fused to a single pistil or solitary: .....	D, D'
C	STAMENS & CARPELS numerous; FRUITS achenes or follicles; TISSUES herbaceous: .....	RANUNCULACEAE
C'	STAMENS & CARPELS 5 or 4; FRUITS capsules; TISSUES succulent: .....	CRASSULACEAE
D	FRUIT fleshy: .....	BERBERIDACEAE
D'	FRUIT dry: .....	E, E'
E	COROLLA lacking: .....	F, F'
E'	COROLLA present; CALYX also present, green: .....	G, G'
F	CALYX present, colored; FRUIT a 3-edged achene: .....	POLYGONACEAE
F'	CALYX lacking; STAMENS & CARPELS in a cup: .....	EUPHORBIACEAE
G	SEPALS 2; PETALS weak; TISSUE succulent: .....	PORTULACACEAE
G'	SEPALS 5 or 4; PETALS firm; TISSUE herbaceous: .....	H, H'
H	LEAVES opposite; PETALS 5: .....	CARYOPHYLLACEAE
H'	LEAVES alternate: .....	I, I'
I	STAMENS 4 long & 2 short; PETALS 4: .....	CRUCIFERAE
I'	STAMENS uniform; PETALS most often 4: .....	J, J'
J	JUICE cloudy; FLORAL-SYMMETRY radial: .....	PAPAVERACEAE
J'	JUICE clear; FLORAL-SYMMETRY bilateral: .....	FUMARIACEAE
K	FLORAL-SYMMETRY bilateral: .....	L, L'
K'	FLORAL-SYMMETRY radial: .....	M, M' (p. 3)
L	FRUIT a legume; LEAVES compound: .....	LEGUMINOSAE
L'	FRUIT a capsule; LEAVES simple, entire-lobed: .....	VIOLACEAE
M	OVARY free from bases of outer whorls: .....	N, N'
M'	OVARY fused with bases of outer whorls: .....	T, T'
N	STAMENS few; FRUIT a capsule: .....	O, O'
N'	STAMENS numerous; FRUIT various: .....	Q, Q'
O	LEAVES narrow, entire; CAPSULE blunt: .....	LINACEAE
O'	LEAVES broad, dissected or compound: .....	P, P'
P	CAPSULE long-beaked; LEAVES dissected: .....	GERANIACEAE
P'	CAPSULE tipped by 5 styles; LVS. trifoliolate .....	OXALIDACEAE
Q	FILAMENTS united below; CARPELS fused: .....	R, R'
Q'	FILAMENTS free; CARPELS various: .....	S, S'
R	HERBAGE dotted; STAMENS in several tufts: .....	GUTTIFERAE
R'	HERBAGE not dotted; STAMENS fused to a tube: .....	MALVACEAE
S	PLANTS small; LEAVES simple; PETALS weak: .....	CISTACEAE



S'	PLANTS large; LEAVES compound; PETALS firm: .....	ROSACEAE (part)
T	UNION OF OVARY with outer whorls slight: .....	SAXIFRAGACEAE
T'	UNION OF OVARY with outer whorls considerable: .....	U, U'
U	COROLLA lacking but CALYX showy; STEM woody: .....	THYMELAEACEAE
U'	COROLLA present; CALYX green: .....	V, V'
V	STEM fleshy, swollen; LEAVES minute: .....	CACTACEAE
V'	STEM not fleshy nor swollen; LEAVES large: .....	W, W'
W	INFLORESCENCE a raceme; FLOWER-PARTS in 4's: .....	ONAGRACEAE
W'	INFLORESCENCE an umbel of paired flowers: .....	X, X'
X	FRUIT a fleshy drupe: .....	ARALIACEAE
X'	FRUIT a dry double capsule: .....	UMBELLIFERAE

## b. SUBCLASS WITH PETALS UNITED

## DIVISION WITH OVARY FREE

a.	UNION OF PETALS slight; PLANTS small evergreens: .....	PYROLACEAE
a'	UNION OF PETALS considerable: .....	b, b'
b.	STEM woody; PETALS 4-5; STAMENS 8-10: .....	ERICACEAE
b'	STEM herbaceous; STAMEN-NUMBER not over PETAL-NO. ....	c, c'
c.	STAMENS fronting petal-centers: .....	d, d'
c'	STAMENS not fronting petal-centers: .....	e, e'
d.	SEEDS numerous, small: .....	PRIMULACEAE
d'	SEEDS few, large: .....	PLUMBAGINACEAE
e.	FLORAL-SYMMETRY radial: .....	f, f'
e'	FLORAL-SYMMETRY bilateral: .....	l, l'
f.	JUICE milky: .....	g, g'
f'	JUICE watery: .....	i, i'
g.	FRUIT a capsule; SEEDS unappendaged: .....	CONVOLVULACEAE
g'	FRUIT a pair of FOLLICLES; SEEDS hairy-tufted: .....	h, h'
h.	ANTHERS free: .....	APOCYNACEAE
h'	ANTHERS coherent: .....	ASCLEPIADACEAE
i.	CARPELS 4, nearly free, maturing to nutlets: .....	BORAGINACEAE
i'	CARPELS fewer, united to a pistil: .....	j, j'
j.	INFLORESCENCE a symmetrical cyme; UNITED CARPELS 3: .....	POLEMONIACEAE
j'	INFLORESCENCE otherwise; UNITED CARPELS 2: .....	k, k'
k.	LEAF-POSITION opposite; MARGINS entire: .....	GENTIANACEAE
k'	LEAF-POSITION alternate; MARGINS dissected: .....	HYDROPHYLLACEAE

(e' FLORAL-SYMMETRY bilateral, from sheet 4)

l.	BILATERALITY slight: .....	m, m'
l'	BILATERALITY pronounced: .....	o, o'
m.	LEAVES opposite; FRUIT deeply 4-lobed: .....	VERBENACEAE
m'	LEAVES alternate; FRUIT unlobed: .....	n, n'
n.	FRUIT a capsule, exploding at maturity: .....	ACANTHACEAE
n'	FRUIT a berry: .....	SOLANACEAE
o.	TISSUE aromatic; STEM quadrate; LEAVES opposite: .....	LABIATAE
o'	TISSUE not aromatic; STEM & LEAVES various: .....	SCROPHULARIACEAE

#### DIVISION WITH OVARY UNITED TO OUTER WHORLS

p.	FLOWERS tiny, aggregated into HEADS: .....	COMPOSITAE
p'	FLOWERS otherwise: .....	q, q'
q.	FILAMENTS fused with corolla-tube; JUICE watery: .....	RUBIACEAE
q'	FILAMENTS free from corolla-tube; JUICE milky: .....	r, r'
r.	FLORAL-SYMMETRY radial; ANTHERS free: .....	CAMPANULACEAE
r'	FLORAL-SYMMETRY bilateral; ANTHERS united: .....	LOBELIACEAE

#### SOME TECHNICAL BOTANICAL TERMS

FLOWERS are borne at the tip of a stalk termed the PEDICEL (if the pedicel is barely developed they are SESSILE).

A FLOWER consists of 4 WHORLS of organs, from base up.

CALYX composed of several SEPALS which are usually green.

COROLLA composed of several PETALS, usually colorful.

ANDROECIUM composed of several STAMENS, which have a slender FILAMENT tipped by an ANTHER containing the POLLEN.

GYNOECIUM composed of CARPELS containing the OVULES.

(the carpels are often united into a PISTIL.) The PISTIL consists of a basal OVARY tipped by STYLES in turn tipped by STIGMAS.

In SEXUAL REPRODUCTION pollen grains are carried by wind or insects to stigmas, which their male protoplasm traverses until it reaches an ovule and fuses with the female protoplasm, and develops into a SEED.

Flowers with inconspicuous corollas usually have light-weight pollen, transported by the wind; conspicuous, heavy-weight pollen transported by insects.

FLORAL-SYMMETRY may be RADIAL, with the organs spreading in Star-like pattern; or BILATERAL, with them divided into right- and left-handed pairs.

SEEDS: When these germinate, they may send out a single first-leaf or COTYLEDON, constituting the MONOCOT CLASS, or a pair of these constituting the DICOT class.



## MAJOR GENERA IN THESE 50 FAMILIES

ACANTHACEAE	RUELLIA
AMARYLLIDACEAE	GALANTHUS, LEUCOJUM, NARCISSUS
APOCYNACEAE	AMSONIA, APOCYNUM, VINCA
ARALIACEAE	ARALIA, PANAX
ASCLEPIADACEAE	ASCLEPIAS
BERBERIDACEAE	EPIMEDIUM, JEFFERSONIA, MAHONIA
BORAGINACEAE	ANCHUSA, CYNOGLOSSUM, ERITRICHUM, LITHOSPERMUM, MERTENSIA, PULMONARIA
CACTACEAE	OPUNTIA
CAMPANULACEAE	CAMPANULA, PHYTEUMA, PLATYCODON
CARYOPHYLLACEAE	ARENARIA, CERASTIUM, DIANTHUS, GYPSOPHILA, LYCHNIS, PARONYCHIA, SAPONARIA, SILENE
CISTACEAE	HELIANTHEMUM
COMPOSITAE	ACHILLEA, ANTENNARIA, ACTINEA, ARNICA, ASTER, CHRYSOGONUM, LEONTOPODIUM, LIATRIS, SENECIO
CONVOLVULACEAE	CONVOLVULUS, IPOMOEA
CRASSULACEAE	SEDUM, SEMPERVIVUM
CRUCIFERAE	AETHIONEMA, ALYSSUM, ARABIS, AUBRIETA, CARDAMINE, DENTARIA, DRABA, HUTCHINSIA, IBERIS
DIAPENSIACEAE	DIAPENSIA, GALAX, PYXIDANTHERA, SCHIZOCODON, SHORTIA
ERICACEAE	ARCTOSTAPHYLOS, CALLUNA, EPIGAEA, ERICA, GAULTHERIA, KALMIA, LEIOPHYLLUM, RHODODENDRON
EUPHORBIACEAE	EUPHORBIA
FUMARIACEAE	CORYDALIS, DICENTRA
GENTIANACEAE	CENTAURIUM, GENTIANA, SABATIA
GERANIACEAE	ERODIUM, GERANIUM
GUTTIFERAE	ASCYRUM, HYPERICUM
HYDROPHYLLACEAE	HYDROPHYLLUM, PHACELIA
IRIDACEAE	CROCUS, IRIS, SISYRINCHIUM
LABIATAE	AJUGA, MEEHANIA, MENTHA, SALVIA, SCUTELIARIA, SATUREJA, THYMUS
LEGUMINOSAE	ASTRAGALUS, BAPTISIA, GENISTA, LATHYRUS, LUPINUS, VICIA
LILIACEAE	ALLIUM, CALOCHORTUS, CAMASSIA, CHIONODOXA, ERYTHRONIUM, FRITIL- LARIA, LILIUM, MUSCARI, SCILLA, TRILLIUM, TULIPA
LINACEAE	LINUM
LOBELIACEAE	LOBELIA
MALVACEAE	CALLIRHOE, HIBISCUS, MALVA

ONAGRACEAE	EPILOBIUM, OENOTHERA
ORCHIDACEAE	CYPRIPEDIUM, GOODYERA, LIPARIS
OXALIDACEAE	OXALIS
PAPAVERACEAE	ARGEMONE, MECONOPSIS, PAPAVER
PLUMBAGINACEAE	ARMERIA, CERATOSTIGMA
POLEMONIACEAE	COLLOMIA, GILIA, IPOMOPSIS, PHLOX, POLEMONIUM
POLYGONACEAE	ERIOGONUM
PORTULACACEAE	CLAYTONIA, LEWISIA, PORTULACA, TALINUM
PRIMULACEAE	ANDROSACE, CYCLAMEN, DODECATHEON, PRIMULA, SOLDANELLA
PYROLACEAE	CHIMAPHILA, PYROLA
RANUNCULACEAE	ACONITUM, ADONIS, AQUILEGIA, CLEMATIS, COPTIS, DELPHINIUM, HEPATIC, PULSATILLA, RANUNCULUS
ROSACEAE	ALCHEMILLA, DRYAS, GEUM, POTENTILLA, ROSA
RUBIACEAE	ASPERULA, GALIUM, HEDYOTIS (HOUSTONIA), MITCHELLA
SAXIFRAGACEAE	ASTILBE, BERGENIA, HEUCHERA, MITELLA, SAXIFRAGA, TIARELLA
SCROPHULARIACEAE	CALCEOLARIA, DIGITALIS, LINARIA, MAZUS, MIMULUS, PENSTEMON, SYNTHYRIS, VERONICA
SOLANACEAE	PHYSALIS, SOLANUM
THYMELAEACEAE	DAPHNE
UMBELLIFERAE	ANGELICA, ERYNGIUM, LOMATIUM, THASPIUM, ZIZIA
VERBENACEAE	VERBENA
VIOLACEAE	VIOLA

\* \* \* \* \*

NEW ZEALAND HOSPITALITY—In sending in her membership dues, Mrs. R. L. Barnett (Laura) writes, "This is one thing I enjoy paying for: the *Bulletin*, and the pen pals we make are just a joy to us so far away. One thing that disappoints a lot of us is that we never get to meet any of the U.S.A. members when they visit our country. We are all eager to give hospitality whenever needed. Where we live is so near the Southern Alps that we could give visitors a royal treat if given the opportunity. I hope this matter can be rectified when next some of you people visit New Zealand. Best wishes to the Society." New Zealand is as rich in hospitality as it is in alpine. Mrs. Barnett's address is 65 Evans St., Timaru, New Zealand.



## THE EDGE OF THE SAN JUAN ISLANDS IN MAY

GUS N. ARNESON, *Seattle, Wash.*

The San Juan Islands grace the north Puget Sound. They are easily approached from Anacortes, Bellingham and Blaine in the state of Washington, and from Vancouver or Victoria of British Columbia. The San Juans claim attention on several counts. Geologically, they are the “. . . deeply eroded and partially drowned southeastern extension of Vancouver Island”<sup>1</sup>; as scenery they are enchanting rocky and vegetation-adorned masses set in a network of channels and bays; economically they are a constant temptation to commercial interests; and botanically they nurture an abundance of species and support a treasury of natural rock gardens. We spent half of a delightfully rainy day—May 11, 1974—on Fidalgo, the island nearest the Wash-



View from Mt. Erie, Wash. in the general direction of Victoria

Gus N. Arneson

ington mainland, and reveled in floral wealth.

We were a party of seven: Frank and Kay Doleshy—our leaders and hosts—Clifford and Olga Lewis, Alvin and Doris Manring, and I; all members of the Northwestern Chapter of the ARGS. Our original objective was to explore the nearby but seldom visited 474 acre Burrows Island, of which the Doleshys own a portion, but heavy rain with a Coast Guard prediction of worse to come prompted a change of plans and we directed our attention



*Erythronium oregonum* clinging to a narrow ledge at the summit of Mr. Erie (1320 ft.)

Gus N. Arneson





*Fritillaria lanceolata* at the top of Mt. Erie

Gus N. Arneson

to the flora of Washington Park and Mt. Erie on Fidalgo Island.

Among the fields of lichen-covered outcrops leading down toward the beach were golden patches of *Mimulus guttatus* interspaced with *Allium cernuum*, *Lomatium utriculatum*, (Spring Gold), blue clumps of *Camassia quamash*, the camas that was the staple of Indian diet, and its deadly associate, *Zygadenus venenosus*, the Death Camas, poisonous if eaten but lovely

to see. There were a few *Lithophragma parviflora*. There were also *Sedum* spp., *Armeria maritima*, and dainty parasitic *Orobanche uniflora*. Everywhere were the graceful little ferns, *Aspidotis densa*. There was much evidence of *Dodecatheon pulchellum* having already flowered and faded.

Interesting flora extends up Mt. Erie—a 1320' high mass of ancient metamorphosed quartz diorite<sup>2</sup>—and at the top we encountered the familiar *Arctostaphylos uva-ursi*, Kinnikinnick, adorned with little pink bells; brave *Erythronium oregonum*, clinging to narrow ledges and a lonely, lovely *Fritillaria lanceolata*, perky in the rain.

This is only a sampling of what we saw and we did not see all, that from previous observations of our party, were probably there. The rocky slopes are known to nurture *Sisyrinchium angustifolium*, *Campanula rotundifolia*, *Castilleja* spp., and *Saxifraga bronchialis* var. *austromontana*, to name a few. Rain squalls and lowering skies impart special charm to wild flowers whose brightness and courage keep them "smilin' through" but such weather, coupled with limited time, is not conducive to cataloguing. It is enough if what is here written suggests that, for those who enjoy rock plants in their natural environment, the San Juan Islands, and certainly Fidalgo Island, is a good place to go in early May.

1—Charles E. Weaver, *Tertiary Stratigraphy of Western Washington and Northwestern Oregon*. University of Washington Press, 1957.

2—R. S. Babcock, Assoc. Professor of Geology, Western Washington State College, a personal communication.

## OMNIUM-GATHERUM

AN EXERCISE IN READING—An article appears in the *ARGS Bulletin*—an article recounting the adventures of a plant explorer in some distant mountain range. Two of our readers, among others, read this article. One is Mr. A. and the other is Mr. Z.

Mr. Z. opens his *Bulletin* at random and starts reading this particular article. He scarcely notices the name of the author. He reads the words as written and perfunctorily follows the author's account of the exploration. He recognizes some of the plant names mentioned but sketchily slides over the descriptions given and the notes on habitat. Some plant names he fails to recognize so skips them altogether. When he has finished reading the article, if he does, he feels that he has learned a bit about a part of the world previously unknown to him, increased his knowledge of plants in general and is quite content. However, somewhere in the back of his mind he is vaguely conscious of having missed something. Yes, Mr. Z. you have missed something—a very great deal, in fact.

Now for Mr. A. and his reading of the same article! Upon picking up the *Bulletin*, Mr. A. first scans the index and his eye lights on the article in question. He notes the author and recognizes that the name is familiar to him. Sometime in the near past he has read another article by the same author and remembers enjoying it. He pauses to review in his mind what he knows about the author. Mr. A. looks again at the title of the article;



another mountain range that is new to him. So he turns to the beginning of the article with a distinct sense of pleasure and keen anticipation. He reads a few lines and pauses again. He wonders just why the author chose this particular mountain range for his venture. He gets out his atlas and finds out what he can about this area.

By this time, Mr. A. is more or less putting himself in the author's place. They are almost as one. Having picked out the locale of the exploration, he ponders on what alpinists he might hope to find there; what would be the best time of the year to start the trip; how he would finance it after estimating the cost; what supplies would it be necessary to collect? How would he get himself and his supplies to the starting point of the actual exploration? Would it be by train, by bus, by plane, by ship or would it be possible to drive to the starting point in his automobile? Questions—questions to be answered. Once at the starting point, how could he proceed? by Jeep, by pack horses or would he have to go afoot, carrying his supplies? Also would there be roads at first, or trails?

Again, how long would he plan to stay in the mountains? Would he collect plants or merely select specimens for pressing, would he take cuttings, gather seeds where possible? Certainly he would take pictures, so there was his camera equipment to arrange for. Should he go alone or take a companion, and if so who? And would this chosen companion be free to take the trip when planned? Questions, interlocking questions, the answers to each depending upon decisions made in other areas. One thing he did not have to worry about was the need to get passports, visas or medical shots for although the trip was planned for a foreign country it was not one that required these annoying preparations. Mr. A. felt relieved on this score as the author must have.

All right! Mr. A. has identified himself with the author—understands many of the author's preliminary problems and the merits of the decisions made. Finally, in his reading and in spirit he arrives at the starting point of the exploration and faces the one-week, two-week, even three-week trek into the mountains and feels a pleasurable urge to get on with it. Now Mr. A. starts to read the article. He is in the right frame of mind. With the author, he slogs along the first dismal forest trail, knowing that it will become more interesting the farther it goes. His heavy pack irks his shoulders and his feet start to hurt. Soon the character of the trail begins to change, for there is a trail and will be until they are in the high country.

In spirit he is with the author at the first meal, at the first night's camp. He is fatigued as the author must have been fatigued. All through the reading of the article he is there in spirit; he perspires during the stiff climb up a mountain spur, he is chilled at night as the elevation gets higher, he wonders if enough food has been brought along, if he has the proper clothing—his legs get tired but he is thrilled as the first high meadow is reached, exclaims over the alpinists in bloom, scrambles up the rocky places, enthuses as the author tells of finding a particularly precious alpine, yet wonders what treasures lie just ahead or over the next ridge. Mr. A., along with the author, gathers and presses specimens, gathers what seeds are available, keeps looking ahead but stops to take pictures. He delights in the day and sleeps soundly

at night, despite the coldness, the rain and the occasional mountain thunder storm.

So, Mr. A. reads to the end of the article. He breathes a sigh of relief. He has been there in those mountains and is again home. He has seen what the author saw, heard the same sounds, pleased in the keen and pure air, enjoyed various fragrances and has known the feel of rocks and the good earth. He has read the article with insight, appreciation and understanding. Now he stops to think that even though the author has made his trip and returned safely home his work is by no means finished. There are the pressed specimens to be mounted, identified and labeled; the cuttings to be cared for and the seeds to be cleaned, packaged and labeled. This done, he is still not through. He must write the account of his venture for the *Bulletin* and that is no easy chore, either. Eventually, after all the initial inspiration, the planning, the trip itself, the after-trip labors and the article writing, he must wait to see the account of his trip in print. When he does see it, he reads it carefully, wonders why the editor made certain changes, appreciates some of them and frowns at others, but over all he is quite proud of himself, and well he may be. It is quite evident that this fine explorer and author would not be happy with the cursory reading given his article by Mr. Z.

What a service the author has rendered the ARGS members and the gardening world in general. Perhaps new plants of great rock garden potentiality have been made known to the members and undoubtedly in years to come many gardens in many parts of the world will be enriched. We should honor all plant explorers and should try to repay them in part by reading their articles as did Mr. A.

Many of our readers are now past the stage in life where they can go prowling in the mountains as was their wont in earlier years. By reading the adventures of those who are still physically able to cope with the strenuities of such explorations as did the author whose article Mr. A. read, these elder members may still feel the exhilaration and excitement such trips engender. These the author felt, and they were echoed by Mr. A. in his method of reading.

\* \* \* \* \*

A BIT OF HISTORY—"The American Rock Garden Society, Washington Unit, held its first annual meeting on October 26 at the home of Mrs. T. C. Frye, in Seattle. The Regional Director, E. L. Reber, presided at the meeting and read a most interesting letter from Montague Free, president of the American Rock Garden Society, reciting the splendid progress that the Society is making throughout the United States, and particularly congratulating the Washington Unit on the very fine showing it has made to date. At this meeting there were twenty members present. The Society is considering holding a rock garden show sometime next spring." This is an excerpt from the Winter, 1934 issue of *Little Gardens*, which was published in Seattle quarterly by the Lake Washington Garden Club of Seattle. Forty years ago the present Northwestern Chapter of the ARGS had its beginning and the 40th anniversary of this event was celebrated in Seattle at the Annual Banquet.



IN CASE YOU WONDERED—For the first time in nearly 300 mailings of *ARGS Bulletin* material between Seattle and Plainfield, N.J. where the *Bulletin* is printed, there has been a mail failure. The dummy and corrected galley, mailed to the printer in December, failed to arrive. This necessitated the reconstruction of the dummy, remarking the corrections and concocting a multiplicity of instructions. As a result, your January '75 issue of the *Bulletin* is quite late in reaching you. This delay is regretted.

\* \* \* \* \*

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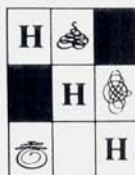
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