

BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

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JULY, 1955

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C. R. Worth, Editor

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ALPINES AT MONTEREY BAY

RAY WILLIAMS, *Watsonville, Cal.*

CALIFORNIA, FOR ALL ITS FAME as a land of floral wonders, seems to be seldom heard from in the rock gardening world. The ease with which a subtropical flora can be grown in much of the state, and the difficulty of cultivating most of the alpiners in the southern section, I think must account for much of the lack of interest. Space is perhaps another factor in the newer housing projects, where dwellings are so closely packed that a scrap of lawn in front and a back yard for the children take all available space. Rock gardeners are no rarity however along the coast from Monterey northward and in other sections where the climate suits. In the south the cactus and succulent garden, which is a rock garden too, takes the place of the alpine flora. Here on Monterey Bay, one hundred miles south of San Francisco, we have a climate in which both haworthia and androsace, typical representatives of a desert and alpine flora, not only grow but thrive side by side. I do not mean to say that they complement each other or even belong in the same landscape, but they do have equal ability to acclimatize themselves here. Of course not all haworthias are hardy in our climate and neither do aretians grow like weeds; on the contrary, it takes all the skill I can muster to keep a half dozen tiny clumps of *A.A. mathildae* and *hirtella* alive. Despite *A. hirtella's* five years of age and apparent good health, it has not bloomed. *A. mathildae* is still too young to flower.

The Chamaejasme section is quite a different matter and most are of the easiest culture, blooming long and freely. *Androsace lanuginosa* var. *leichtlinii* is especially free blooming here, and hides its mat of silvery rosettes for months with umbels of clear white flowers, each with a bright pink eye. It is truly amazing the neglect and drought some of those Himalayans will stand, once they are established. However, care and water bring an ample reward in more vigorous plants and brighter flowers.

My rock garden on an open hillside facing east is too bright and sunny for most of the true primulas and often is allowed to become too dry for them. The few I still grow are tucked away in a bed to themselves, where they can be shaded and kept moist. A few clumps of *Primula darialica* remain in the rock garden, on the north side of a rock wall, the only bit of shade available. All the others

after being hopelessly sunbaked had to be removed. This tiny fellow has the charming habit of blooming intermittently through the summer, but its best show is in early spring when it sends up loose clusters of bright lilac flowers above fresh new leaves, all silvery on their under sides with white farina. It spends the winter as a fat dormant bud at ground level.

Lysimachia serpyllifolia is another plant of the Primulaceae which like the androsaces likes the sun, and seems to relish ample moisture. It has the bad habit of partially dying back for no apparent reason at times, but since it grows easily from cuttings and reseeds mildly, healthy plants are nearly always in evidence, and injured ones are easily removed. It makes an airy open mat of tiny glossy leaves of deep green and spangles itself with bright yellow stars, a most pleasing contrast. Burnished mahogany seed capsules, the size of a pea, help the show.

Many gardeners in California have somehow gained the impression that a plant to have merit must be evergreen and, if possible, everblooming. Year around sameness is seldom desirable in anything, and certainly not in the rock garden. The consistent everbloomer is often rewarded by eventually landing in the compost. While it is easy enough here to fill the rock garden with plants that retain their foliage the year around, the truly interesting one will contain a percentage of plants that are wholly herbaceous and show no trace of their whereabouts for a portion of the year. The appearance of fresh new growth and lush green leaves assures the joy of spring. What else can herald spring more faithfully? Our California flora is rich in herbaceous plants, and our hills and canyons are bright with new growth from February until early summer.

It is often interesting to note the various ways that plants spend their rest period. *Ranunculus gramineus*, native of both Europe and Africa along the Mediterranean is no stranger to dry summers such as we have here on the California coast. With no water, its leaves shrivel soon after ripening the seed, usually shortly after midsummer. New growth starts from the dormant roots soon after the first winter rain. With water the plant often remains evergreen. It is one of the brightest and earliest of spring flowers in my rock garden, with bright yellow buttercups on slender wiry stems, held well above clumps of somewhat grassy foliage.

Arenaria pinifolia from Asia Minor has quite a different winter appearance. All summer long, it mimics a tousled spreading dianthus, with the exception of its cloud of dancing white flowers, but with the approach of winter, it bleaches out to a spiny gray mat with no trace of green except a tiny bud at each growing tip that cannot be seen except when examined closely. It is yearly a surprise to me how those persistent dead leaves can be covered so quickly and completely each spring with new ones.

Geranium pylzowianum from Tibet and *Scutellaria scordifolia* from Siberia are two very different plants that manage in many ways to be very much alike. Both have tubers, both are slightly invasive and both go dormant quite early in the season, dying down soon after flowering. They leave no unsightly litter, and after the flowers thin out, one scarcely realizes what is happening until they are gone. I grow them together in a bed of scree, which in my garden means a mound of gravel, well enriched with compost and a little loam added for good measure. They romp around in this and invade each other's territory to their hearts' content, with no apparent damage to either. The geranium makes a low carpet of bright, deeply cut foliage and bears big, mostly upfacing, bright pink flowers not far above. The scutellaria, usually a little later, breaks through the carpet of geranium leaves with a thicket of upright wiry stems, moderately clothed with tiny dusty green leaves. Those six-inch stems are topped with a one-sided spike of intensely, deep blue scullcaps. Inferior forms of *S. scordifolia* are



Ray Williams

Helichrysum orientale in flower on top of the rockwork, *Arenaria laricifolia* bristling with flower stems below it

reported, with more or less washed out flowers and poor habit, but fortunately, I have missed them. The scutellaria keeps its roots well covered, while the geranium is more careless, and after a beating rain, the scree is sometimes littered with its tiny tubers. This exposure to sun and frost does no harm.

Tight carpeting ground covers are always intriguing, and the West Coast climate is kind to a great variety of them. Some few become too invasive to be allowed. *Helxine soleirolii* is one example, though it is often planted, sometimes I fear by those who find out too late its true nature. Among the best for this locality are the raoulias of New Zealand, though they require careful cultivation.

Raoulia glabra is one of the easiest to grow, and a more satisfactory cushion plant to carpet the bottom of a miniature ravine in the rock work would be hard to imagine. It makes a firm but springy cushion, an inch or two deep, that creeps along ever so slowly and follows every contour of the terrain it grows on. Its yellow tinged green is a deep rich color, quite surprising in a plant that contains a tinge of yellow in its foliage. White flowers sit tight on the cushion, and are so closely packed that they resemble patches of snow. These are followed by quantities of fluffy seed which fortunately are usually blown away in a few days, leaving the plant smooth and clean again. Only occasionally does a self sown seedling appear.

Raoulia australis is an even slower growing species, and one that draws instant attention for it has no trace of green in its foliage, but is a close tight mat, the color of new aluminum. Its flowers are wider spaced than in *R. glabra* and bright yellow, but so tiny as to appear mere flecks of gold on a silver cushion. Its seeds too are tiny white fluff balls, soon whisked away by the wind. New Zealand has been reported as its homeland, but Tasmania has been given by other authorities.

Cotula squalida with its close carpet of rich bronze and green featherlike leaves, *Mentha requinii* with fragrant but sombre green mats, *Arenaria balearica* with filmy green foliage, and the acaenas, or New Zealand burrs with a variety of species, some from Chile but mostly from New Zealand, are a few of the smaller and denser ground covers that find it congenial here. They are a pugnacious lot and the frailest and tiniest ones are eager to do battle with their neighbors for territory, but in most cases their invasiveness is easily handled, and they are an invaluable asset to the rock garden.

The flora of the lands bordering the Mediterranean is well suited by our climate, and mountains of this region, both high and low, have sent us many rock plants to enrich our gardens. The celsias have two perennial species of garden merit that while seldom seen are easily grown here, and one of them, *C. arcturus*, is a tough and long lived plant that stands almost any amount of drought and neglect. It becomes woody with age and needs an occasional cutting back when it becomes too leggy. Its long tapering spikes of flowers are soft yellow with prominent violet anthers. A fortunate combination with *Festuca glauca* and *Silene schafta* made an unforgettable picture in my rock garden this summer, which I hope will be often repeated.

Celsia acaulis sits tight on the ground and makes numerous tufts of dull green deeply veined leaves, all from a single thick root stalk, which after the second or third year is prone to split and become hollow, and almost sure to rot if the winter is wet. It bears its yellow flowers singly on short stems, just topping the foliage. Leaf rosettes broken from the crown and placed in sand root with ease.

Euphorbia acanthothamnus, also a Cretan plant, has proved most interesting. When I first received seed from Peter Davis' 1950 collecting expedition, I suspected this to be an easy thing, and possibly a pest later on. On the contrary, it germinated slowly and poorly, and the plants I have today show no inclination to take over the garden. Less than five inches high, they mimic some ancient tree. Zigzag gray spines of past growth intermingled with the yellow green of new growth, bearing the tiniest of leaves and spangled with little yellow euphorbia flowers, make it altogether charming. Seed sets sparingly and always manages to get away, and I have had no luck with cuttings.

The teucriums that range across Southern Europe have given us a number of interesting plants for the rock garden. *Teucrium aureum* with stiff jointed stems and tiny sparse foliage, is thickly coated with silver felt, stems, leaves and all. Its yellow flowers are tiny and borne in terminal heads, and are almost buried in their felted calyxes. This plant never fails to draw instant attention.

Teucrium subspinosum from Majorca is a compact spiny little shrub, the size of a baseball. It has been called the Silver Hedgehog, but the color is nearer pearl gray. It is a close mass of tangled little twigs, each ending in a blunt spine and not too densely clothed in wee tiny gray leaves. It has a generous peppering of bright pink flowers in summer.

Teucrium marum from Southern Europe is a much larger shrub of the same general coloring, but it is not spiny and bears its flowers in spikes instead of singly. It has a rich pungent fragrance, so beloved by cats that even large foot high shrubs are often broken down and destroyed. When it can be grown without too much damage by the cats, it makes a striking little shrub for the rock garden.

Gentians are not difficult here but are seldom seen, most gardeners, I think, holding them in awe and consider them as plants for the expert. *Gentiana verna angulosa* blooms freely, and once one has got the seeds to germinate, no further trouble is to be expected from it. *G. acaulis* grows easily enough, but certainly does not smother itself with its big blue trumpets in my garden; a bloom or two



Ray Williams

Rock and herb garden combined: *Satureia imbricata* flanked by *Thymus nitidus* on either side

a year is the best I can do and not always that. *G. saxosa* from Tasmania blooms freely, perhaps too freely, for it is none too easy to keep in good health after flowering. Its flowers are cups rather than trumpets, and are white, finely veined with green at their centers. It likes a cool moist spot on the shady side of a large stone or wall. *G. septemfida* and its close relative *G. septemfida lagodechiana* are easy going plants that thrive in our locality in any reasonable location. What their flowers lack in sparkling gentian blueness they attempt to make up in mass production.

A great deal of attention has been paid to the flora of the high country of South Africa by English rock gardeners from time to time, in the hope of finding plants, especially those from the Drakensberg, that might prove hardy in Britain. Some of those importations have been successful, and, needless to say, they are hardy here; our difficulty is a source of supply. The strictly succulent plants of lower altitudes and drier areas, an exotic flora that does not blend well with an alpine one and often is tender to boot, are generally easy enough to acquire.

The silvery tufted helichrysums, of which there is a great variety, seem to get the most attention. Some of them must be wonderful indeed, but not even *H. marginatum* has proved easy to acquire although it has been grown successfully in England for years. The seed which I have been able to get has shown only chaff when view through a glass, and when planted produced nothing. This may sound discouraging but is not really so for rock gardeners as a whole, I think, are a patient and persistent lot. I for one scanned catalogues and seed lists and made seemingly countless inquiries for ten years in the quest of seed of *Asphodelus acaulis*, a plant of the Atlas Ranges of Morocco. Today it is growing lustily in my rock garden and judging from the buds in the center of each rosette, this their third year of blooming will be a generous one.

Back to South Africa, it is evident that not too much material suitable for the rock garden is available. *Crassula sarcocaulis*, a stocky little shrub, well clothed in oddly cupped obtuse leaves, is perfectly hardy here and in midsummer

completely hides itself with flowers of dull crimson. This plant beloved in British alpine houses is almost never hardy on their screes. *Crassula schmidtii* with its little cluster of pointed fleshy leaves is, I think, as permissible in the rock garden as many of the sedums, such as *SS. stahlii*, *sieboldii* or *multiceps*, and in summer forms a perfect dome of flowers of the same attractive shade as *C. sarcocaulis*. *Crassula namaquensis*, which is usually found in front of a *C. justus-corderoyi* label, hints strongly of the desert but its tight close habit, its ashy gray leaves and flesh pink flowers make it desirable in sunny crevices among the rocks. There are many more crassulas of perfect hardiness here but the great majority of them are for the strictly desert garden and out of place in company of our rock plants.

Dimorphotheca barbarae compacta has not yet bloomed in my garden, nor is it widely known, but at one year old it gives promise of being a first class rock plant, neat and compact. *D. caulescens* for all I know has not left its high home in the Drakensbergs.

Most of South Africa's bulbous plants are not for the rock garden but some of them are delightful there. An albuca species from Basutoland, perhaps *A. minor*, bears odd fleshy textured white flowers with a green stripe down each petal; three inches is its average height, and it blooms here in early summer. Of three romuleas, two species are delightful little spring flowering bulbs that somewhat resemble crocus. *R. sabulosa* is the finest of them all, but unfortunately not easy to increase; among romuleas its flowers are immense, up to three inches across and of brilliant crimson, feathered with black and brown and deep green in the throat. Slender dainty *Geissorhiza splendidissima* bears four or five, one inch wide flowers to each six inch stem and they are as blue as *Gentian verna*, with an almost black center. Like romuleas they are a delight in any association, whether alpine or desert or just growing in the grass.

Sedums, like oxalis and alliums, are often spurned, largely I think, for the sins of a few. One of the most distinctive plants I have the pleasure to possess is *Sedum oxypetalum*, a native of Mexico. My introduction to this plant was when it was shown last year at the California Horticultural Society by Victor Reiter Jr. He had grown it in a shallow pan in the semblance of a Japanese bonsai tree and at two years of age it was as striking a specimen as some of the true bonsais I have seen that were nearing a century, not all of them of course, for many of those dwarfed trees are truly remarkable. This plant needs no training but comes by its treelike shape naturally and may easily attain a height of two feet or more. With its thick trunk and sturdy branches it brings to mind the old drawings of the baobab trees that were used to illustrate the volumes telling the exploits of Stanley and Livingstone and published at the turn of the century. It is not easy to find a suitable place for it in the rock garden but with a background of really large boulders, it can be striking.

Mexico's higher mountains I feel sure could supply many delightful plants new to our gardens. *Phacelia platycarpa* brought back by Lester Rowntree years ago is one that has persisted in my garden largely by its own efforts, a tidy three or four inch wide rosette of sage green leaves with cool clusters of the palest china blue or even white flowers nestled in its heart. Only after it was sent to an English plantsman did it come back with a name and a new respect. A penstemon bearing claret colored tubular flowers on graceful arching stems of eighteen inches or so blooms freely each summer without benefit of name. It is of the same collecting.

I have tried to convey some idea of the range of plants that can be grown in this section of California by mentioning a few, a very random few, of widely scattered genera. The possibilities are almost limitless, for while rock gardening is not the most popular branch of horticulture in the state, it could well rate as the most interesting.

“SERMONS IN STONE”

ELLEN PAGE HAYDON, *Riderwood, Maryland*

THE MAJORITY OF PEOPLE who create and maintain rock gardens do so for one of two reasons: as a home for a collection of plants whose natural habitat is among stones, or as a means of beautifying certain sections of their property; or, possibly, for both. The combination of both purposes is the most admirable; for the acquisition of a fine collection of native and foreign plants added to the making of a beauty spot in the home grounds results in a noble achievement and a work of art.

The *plants* in a rock garden are of main importance, and the rocks used for their environment must be a matter of convenience to the growth and life of these plants.

But, in building their horticultural home, *taste* in selection and arrangement of the rock is imperative, if one is to accomplish anything that is artistic or pleasing to the eye of the beholder. Hardly would one build rock gardens of brick or coal or blocks of cement. Yet, it might be asked, if this necessary protection for plant roots is buried, what matters it of what material it consists? That is does matter is unquestionable. The health of many plants demands the presence of stones about their roots and crowns.

But we are considering also the appearance and beauty of the garden; and so the type of rock used should contribute largely to that beauty. Although much of the stone is buried to form cool moist runways for roots, and also to provide drainage, a great part of it will appear and should appear on the surface of the soil. Cool rock faces and small boulders shield from the sun, break the force of wind, afford support to weaklings and provide snug nests for the very wee things, holding snow blankets over them in winter, and bathing their feet in moisture in the summer.

There will be ledges, large boulders and small stones scattered about, as well as chips. Everywhere we will have glimpses of it between and among the foliage and blossoms and it is my conviction and creed that it should be equally as beautiful in its own appearance as that of the plants it frames and protects.

Many people are fortunate enough to have natural outcroppings of some kind of stone, limestone, granite, mica schist or gneiss; and these blessings of nature, supplemented by small stones gathered and placed in conjunction with them make very lovely gardens.

Almost anyone, by patient work, may collect beautiful specimens, always bearing in mind that these should be of related or similar type.

Dull grey rock, weathered and lichened, is a good background for bright blossoms and silver grey or light or dark green foliage, and its deep color tones are particularly fine near dwarf evergreens.

Limestone is a desirable material. Certain plants have need of it and can flourish only where the grit is present in the soil.

Tufa, a dirty grey or yellow grey, porous, creviced, and hollowed, is used where it abounds, but *I* think is not so desirable as it has a dead appearance as of old bones. It is an impure, earthy substance, frequently containing bones and horns of animals, leaves, mosses and vegetable matter (all of which may or may not be beneficial to plant health), and is found in alluvial earths in the vicinity of calcareous mountains. There is also a volcanic tuff which contains lava and this is confined to volcanic countries. Tufa is suited to and picturesque in cactus and succulent gardens, but, as is my belief, would be very tiring and flat of tone in a general and especially a large rock garden.

Those who are fortunate enough to live in a section where serpentine abounds have at hand a material unequalled. Combine it with stratified outcroppings of gneiss, or weathered granitic rock or limestone, and your garden comes alive. I have lived for some years near a location of serpentine quarries and this has made it possible for me to obtain large quantities of this beautiful formation.

For those not acquainted with it, let me explain that this is a mineral deposit occurring in large masses in beds of gneiss, or mica-slate; or mixed with granular limestone. Such minerals as steatite, talc, magnesite, copper, and chromate of iron produce colorings, which, showing in stripes, veins, clouds and spots, give this conglomerate the name serpentine. It is so beautiful that walls and rockeries built of it are superior in effect to any other. For withal it has the look of age, of belonging to its surroundings. The surfaces may be rough or smooth, but they are always of soft tones and gradations of color; some consisting of several shadings of one color, some combining many colors.

The traces of minerals in this rock produce the most exquisite and amazing harmonies: soft blues, from very dark to very pale, plum color and blue-violet and rosy-mauve; delicate Nile green to dark moss green; grey green and yellow green; dark copper red and orange yellow; pale sulphur yellow; all toning perfectly with the dull grey of limestone and mica-slate.

There is scarcely a plant or blossom which does not stand out in beautiful contrast, or does not harmonize with these shades: picture aubrietia trailing its blossoms over grey, pale green and dull orange, *Tunica saxifraga* spraying its pink stars from beside a rock of soft blue; petticoat narcissus and angels' tears, pale yellow *Primula veris*, the amethystine 'Wanda', violas and wild violets, *Anemone pulsatilla*, *Geranium sanguineum roseum* and *album*, the androsaces and lewisias; later the silenes, of which *S. Wherryi* is most beautiful, and many others amidst stones of orange, grey and sulphur yellow; mosses spreading velvet blankets over them and tiny rock ferns reaching exploring lacy fingers up their sides; plumes of shell pink and cream astilbes, and the low, sweet nodding western delphinium waving above small boulders of garnet and grey.

So soft, so unobtrusive are these colorings, melting and fading one into another and into the foliage and blooms of the plants that there is no unnaturalness. They create a general and particular impression, that rests the eye and feeds the soul with beauty.

Common serpentine is found in many localities in many states of this country. It is also present in other countries of the world. The precious serpentine is polished and used for ornamental purposes and is called marble, but it is not a true marble as it differs in chemical composition. The common serpentine is the type suitable for rockeries and walls. Its surfaces are rough; its forms irregular. It is so prevalent in this country that many rock garden enthusiasts may have the opportunity of using it as a building material for their gardens.

It is difficult to paint with words a picture for the mind's eye of the general effect of its use. Out of the results of my own experience I can suggest that my fellow gardeners give it a trial where and if possible to obtain it.

Only the Greatest Artist can create such loveliness as is seen in these formations of the earth.

But "he who hath eyes to see" may be privileged to use these "Sermons in Stones" to his own advantage and enjoyment and as an object lesson to his neighbors in artistry combined with practicability.



R. C. Barneby

Ranunculus hystriculus in the alpine house

RANUNCULUS HYSTRICULUS

DWIGHT RIPLEY, *Wappingers Falls, N. Y.*

EXCEPT FOR THE WATER CROWFOOT, *Ranunculus hystriculus* would appear to be the only white-flowering buttercup in Western America. In a way it's rather a plain Jane (although Jepson describes the flowers as "delicately engaging and somewhat suggestive of those of *Anemone quinquefolia*"), but ease of culture recommends it to those who have attempted unsuccessfully to grow the alpine Ranunculi such as *RR. adoneus*, *oxynotus*, etc., which are virtually impossible, as are almost all plants of the high cold slides. This one, however, is found at much lower elevations (1500 to 5000 feet) in the Sierra Nevada, where it is considered rare, and one reason for its tractability is that it occurs in clefts of rock—nearly always a good sign. The rocks it likes are wet, often from the spray of waterfalls, and Yosemite is its best known habitat. As well as the specimen figured, I have three clumps growing and flowering in a vertical rock-wall under glass, kept damp in the right season by a discreet trickle from above. This was recently available in the Seed Exchange, and Mrs. C. E. Wells mentions it (under its synonym of *Kumlienia hystricula*) on page 25 of the January BULLETIN, saying she grows it at home in pots.

The two xerophytic members of the subgenus *Beckwithia*, *RR. Andersonii* and *juniperinus*, might almost be described as bearing white flowers, but they very rapidly turn pinkish, then finally a dull rust color, and all floras, as well as Lyman Benson's Monograph on the genus, refer to them as red or reddish.

* * * *

Though only nature (hastened and harnessed in some instances by the plant breeder) can make a new sort of plant, it is open to practically any fool to make a new species.—Clay.

SOME CAMPANULAS

BETTY JANE HAYWARD, *Scarborough, Maine*

Campanula raineri is among the choicest of alpine plants, and is always greatly treasured and sought after, both abroad and in America.

Previous to 1953 my garden had never known it, although I had longed to grow it for many years. Last year, a little group of several plants settled down to grow and flower. Over the tufts of characteristic grayish oval leaves, the enormous blossoms of fine light blue were a wonder and a delight. These flowers have somewhat the look of *C. turbinata* or a small version of *C. carpatica*, but are large and lovely on the little stems that hold them up just above the toothed leaves.

The real reward came with the ripened seeds, for they were many. Planted in late November in a cold frame with other alpiners, they had the frost and snows of winter to help the ripening process. Spring brought every seed up, I should think, for the row was thick with little plants. Later when they had developed enough they were transferred to a nursery bed where they grew through the summer.

By autumn, many were fine large plants several inches in diameter, and, with great pleasure and anticipation, were put into the rock garden. The soil used was the usual gritty, humus filled mixture that is used for other choice plants throughout the garden. One group of twenty-five together was placed on top of a low wall. The surface about the plants was covered with fine stone chips. Another lot was placed farther up in the garden under the same conditions. It seemed wise to experiment with various situations and aspects.

Watchfulness to gather every seed that rare plants may ripen cannot be urged too strongly. The reward is often great, as in this experience of growing *C. raineri*. Seed from garden plants is usually greatly superior to that which is collected.

C. sartori. This little monocarpic species can be very attractive when a number of the rosettes is grouped on a small plateau or flat area in a slightly raised part of the garden. It is so small that it needs to be seen near eye level.

Development in the first year results in a circular rosette about two and a half inches in diameter, rather downy, and gray. Lying closely pressed to the soil, it remains in this condition until blossoming time the following spring. Then prostrate, brittle stems emerge all around, and remaining adpressed, produce the small white campanula flowers in the leaf axils and at the stem endings. After setting some seed the plant dies. In the proper place, and away from flopping neighbors, *C. sartori* is a deserving and rewarding little plant.

C. saxifraga. This lovely campanula seemed sensational to me at first sight of its large and beautiful blossoms. Unlike the last, this is a true, long-lived perennial if it is happily situated. In the first years of its life it is rather smallish. Thereafter side growths are added annually to make a tuft finally of approximately five or six inches diameter. *C. saxifraga* has a long tap root and resents disturbance. Its place in the garden, preferably high, should be well chosen, and it should then be left undisturbed if possible.

The oval leaves, slightly toothed, grow with long petioles. The enormous bellflowers vary somewhat in shape, as petals are rounded in some, while in others they are rather pointed. The shade of color varies too, but all are lovely whether pale or deeper blue. It is possible that other forms are present among these plants, as there seems to be confusion about the various types in the aggregate of *C. tridentata*, *C. saxifraga*, *C. aucheri*, etc. I am unable to distinguish them myself, and there is surely variation among those in the garden.



Dr. H. S. Wachter

Campanula sartori on the vertical face of a wall

Seed is almost certain to form in the large capsule after flowering. It germinates with great freedom. The small plants must be handled carefully however, for at a tender age as well as later they hate to be moved about. A well drained place, with porous soil, is advised.

C. divaricata came to the garden by chance: never having planted seed, I thought it was a weed. Research showed that it is an American species growing wild in Virginia, Tennessee and Georgia. Tall, perhaps, for the rock garden, its airy grace makes it acceptable. The somber dark green leaves are strange in shape, acuminate at both ends, unlike any campanula I have known. They make a mat at the ground out of which springs a stem of eighteen inches; little leaves come at intervals on the stem, and small pale bells grow with them. The unusual feature is the long style that protrudes far out of the flower. The slender stems sway with every passing breeze. *C. divaricata* is perennial, increasing but slowly in size, adding a few small crowns each year. The seeds are not numerous in the small seed vessels that seem to shrivel away quickly.

C. excisa. This delicate, wandering, little plant is in my garden to stay, I think, but never to stay put. It threads itself in and out of the encrusted saxifrages, comes up in the middle of the gentians, and is everywhere but in its own corner. It is hopeless to try to bring it together in one spot, for if you do it promptly dies there.

Spreading by stolons in the manner of *C. cochlearifolia*, but delicately, it sends up thin three inch wiry stems with thin textured, narrow leaves. The



Dr. H. S. Wacher

A twenty-year-old plant of *Campanula aucheri* (close to *C. saxifraga*)

flowers are hanging, amethyst bells with pointed petals, and at the junction where they separate is the puncture that gave the plant its name of *C. excisa*. It is considered by many gardeners to be a rare and difficult plant. Here it seems to be more of a loveable little weed; however, it would be missed if it were no longer about.

C. lasiocarpa is from our own Rocky Mountains as well as native to Japan. It is a choice and lovely species, though of a short-lived nature. It has been in and out of my garden a number of times. It grows in rather small tufts of oval leaves, toothed and somewhat shiny. The thick little flower stems, with a few narrow leaves on them, hold a single flower, light blue in color, with just a hint of deeper color down each petal. They are unusually thick in texture for a campanula. *C. lasiocarpa* seems happiest in a place in partial shade, on a little slope with stone chips about the crown. It must have good drainage, as winter wet would be fatal. Although it seems to have a short life, seed is quite generously and quickly produced in a large capsule.

C. pulla. This one is among the loved and lost. I would be happy to have it again, for it is lovely, and like the last it is a dwarf species. Like it, the leaves are shiny, but of a different pattern, thinner in texture and darker green. The flowers are rounded hanging bells, the darkest blue of any campanula I have seen, with a sheen that is exceptional. A choice place in partial shade would be where it would go if it ever came here again. It is perennial, and spreads about moderately.

C. cephalonica is in the large group that *C. garganica* envelops. In its dormant state the plant looks much like the latter species. When flowering, however, the stems grow erect and bear the typical flowers up the stalk and at the top. A slight hairiness is noticeable on the stems and calyx. The color is like that of the type, pale lavender blue.

A GARDEN OF PRIMULAS

ALICE HILLS BAYLOR, *Johnson, Vermont*

THE GROUP OF PLANTS that come under the genus *Primula* is varied and interesting, and among the finer plants to use in one's garden. With a few of the species selected from various of the sections into which the genus has been divided, it is possible to have bloom from the first warm days of spring until snow covers the ground. This is possible because the *Vernales* section, and *PP. japonica*, *cortusoides* and *auricula* usually have a second blooming in autumn, which extends the late season of the *P. sikkimensis* group. To the majority of gardeners primroses are only spring blooming plants. To delve into some of the later blooming groups is an exciting adventure, and one that repays in both interest and garden effect.

Success in growing and bringing primroses into bloom—for that is the ultimate aim of a gardener—is dependent on knowledge of the needs of the various species. To duplicate, as far as possible in the home grounds, the conditions under which a given primrose grows in its native haunts oftentimes taxes the gardening skill and the ingenuity of the grower. However primroses seem to be extremely adaptable to garden culture, and given only similar conditions to their natural environment, can be cultivated with remarkable ease. Perhaps attempting to give them their special demands is one reason why there is an ever growing interest in this old and fascinating plant family: old, because primroses were among the plants listed in the earliest herbals printed, and fascinating because of their variability in color, fragrance, and type of flower.

Partial shade is a requirement, especially shade during the afternoon hours, so an easterly exposure is for the most part more desirable. Experience has confirmed the belief that wind is more detrimental to primroses than sun because of the rapid rate of transpiration.

The soil mixture used at Sky Hook Farm is enriched clay. The planting sites are prepared to a depth of from twelve to eighteen inches, for it has been found that depth of cultivation is of primary importance for both drainage and conservation of moisture. When the roots go deep for food there is less chance of lack of moisture afflicting them. Well rooted cow manure is spaded into the soil, together with old sawdust, tobacco stems, and wood ashes. (Dry cow manure is satisfactory.) Humus in the form of leaf mold, peat moss (if soaked to the saturation point), or garden compost may be used in place of sawdust. Vermont is a lumbering state, so that sawdust in all stages of age is available, the older the better. The proportion of manure used has never been measured exactly as that item is also plentiful. It is brought to the garden in old sugar buckets, and one is used about every square foot, together with half that amount of sawdust; a sugar bucket would be about one-third of a bushel. During the blooming season, unless the plants are due to be divided, the bed is top-dressed with a mixture of sawdust and manure. Mulching is important as it keeps the root run cool and conserves moisture. At transplanting time or when plants are divided and reset, the prepared bed is not disturbed, but a trowelful of manure is placed at the base of each planting hole. There seems to be no need to incorporate sand into the soil for drainage if the site is cultivated deeply when first prepared. If however one's garden lacks natural drainage it may be wise to use sand.

The only damage due to lack of drainage occurred in spring with the melting of a high snowdrift over the area where polyanthus and *P. denticulata* were planted. The polyanthus were not affected, but the crowns of *P. denticulata*

were rotted. As this was variety 'Ruby', it seemed a great loss. However the plants were lifted and the rotted crowns removed. Each long white root was washed and replanted in another part of the garden, where it produced a new plant although at the time of separation none of the roots seemed to have a "growing point", or at least none was visible.

The wood ashes add potash to the soil, which is needed for plants to produce good color, and the lime content releases chemicals for plant food besides overcoming the low pH of the soil. No chemical fertilizers have been used, as the writer is convinced that organic fertilizers are more valuable, especially in areas where there are apt to be dry periods. During the summer of 1953, Vermont suffered a severe drought. Our main spring failed to flow and our deep well was almost dry. *PP. denticulata* and *japonica* wilted, and in one area the foliage of the former dried, but of the hundreds of both species not a plant was lost. That is sufficient proof that deep cultivation and soil filled with organic matter are requirements.

The tobacco stems are used as an insecticide for snails and also as a slow fertilizer. If snails are prevalent, the use of a good commercial dust is advised. A good practice is to dig cigarette and cigar stubs from ash trays around the plants. Perhaps the use of tobacco has eliminated fungous diseases; at any rate, none has been found among the plants.

The members of the Vernales section of the genus *Primula* include *PP. vulgaris* or *acaulis*, *elatior*, and *veris* or *officinalis*. The polyanthus varieties were produced at an early date by the crossing of *PP. veris* and *vulgaris*. Gertrude Jekyll's improved polyanthus, which is known as the Munstead strain, has an exceptionally fine umbel of clear yellow flowers. *P. vulgaris (acaulis)* carries the large yellow flowers, which almost completely cover the plant, one to a stem. The pink variety is *P. v. sibthorpii*, clear, beautiful, and long lasting. The well known Juliana hybrids are also in this group, and may be had in a color range of maroon, pink, red, blue, and yellow. There is a blue of exceptional merit, called 'Midnight,' which is a deep, clear blue, and which has the appearance of a bed of African violets when in bloom. Its foliage is also a decided blue. The Vernales may be raised readily from seed, or propagated by root division.

In April the primrose garden is predominantly lavender, blue, and yellow, for the beautiful and stunning *P. denticulata* with large round heads of lavender flowers blooms with the yellow *P. veris* and polyanthus, and 'Midnight' and 'Sapphire' as an edging. These remain in bloom for a month. At this early period the leaf buds of the Sikkimensis are just pushing up through the soil to bloom in July.

At the last of April, the red flowered *P. rosea grandiflora* blooms with rose-pink *P. cottia*, which has substance like velvet, and is reported to be a form of *P. villosa*. *P. cottia* is an alpine in the subsection *Erythrodosum* of section *Auricula*, and the subsectional name means red-haired, referring to the leaves' being somewhat covered with red hairs. *P. rosea* is a Himalayan found at heights of from ten to twelve thousand feet. It develops a cluster of pointed glossy dark green leaves, and the sparse umbel of brilliant flowers rises on a three inch stem above the leaf crown. It is most desirable because of the earliness of bloom and the brightness of color. *P. rosea* is the most difficult primrose to divide as the roots are a mass of what seem to be wire-like threads that hold together tenaciously.

The month of May certainly brings the height of bloom in the primrose garden, with the auricula terrace a mass of color—white, yellow, lavender, buff and deep purple—and the candelabras and *P. cortusoides* adding deep rose to the early yellows of the Vernales.



Dr. H. S. Wachter

Primula villosa, of which *P. cottia* is a form

P. pulverulenta is the first member of the candelabra group to bloom and makes a stunning effect as the twenty inch stems rise above the dark green foliage of the robust plants, carrying tier on tier of deep blue-red flowers with a darker eye. Wilson, its discoverer, gave it the name of "silver dust primrose", as it is generously powdered with farina. The Bartley strain of *P. pulverulenta* is a clear salmon pink and greatly admired. It is a smaller and daintier plant, and its foliage is a lighter green.

The Cortusoides group gives many and lovely additions to the primrose garden. They have been called the "woodland primroses" and have been in cultivation a long time, having been described by Linnaeus. The distinguishing characters are the lack of farina and the leaf form, which resembles that of some members of both *Saxifraga* and *Heuchera*. Besides the shape of the leaf being different from the majority of primula foliage, that of some members is also densely covered with white hair, which gives it an unusual appearance.

P. sieboldii, often called the "phlox-flowered primrose," is in bloom in April and May. The leaves are deltoid with cordate lobes at the base, and are heavily studded with white hairs. The four to eight flowers terminate the six inch stem and each floret is often more than an inch across, with five segments, each of which is again divided into two lobes, to give the appearance of a phlox flower. The color of the plants I grow is pure white, with deep substance, but there are also soft clear pinks, lavender blues, and, predominantly, magenta shades. Those having *P. sieboldii* for the first time may be concerned when in July or August the entire plant goes underground. The seeds are scarce and difficult to germinate, but it may be propagated by division of the rhizomes. If raised from seed care and patience are needed as the seedlings are tiny and delicate.

P. mollis is in the same group (Eu-cortusoides) and has deeper rose colored flowers than its cousin *P. cortusoides* of gardens. (True *P. cortusoides* is probably not in cultivation.) It also repeats its blooming season in autumn, and this last fall the flowers stood crimson above the first snow.

P. polyneura has an entirely different appearance as the leaves are decidedly woolly, being covered with long white hairs. The flowers are borne in from one to three whorls on stems six to eight inches tall, and vary in color from rose to a deep blue-red.

P. kisoana is in the Geranioides group, and is also noted for the hairy stems, as well as for the dense tomentum on the under side of the rounded leaves. The deep rose flowers are in bloom before the leaves are completely unfolded. It spreads underground rather freely, but is a poor seeder.

P. saxatilis resembles *P. cortusoides* of gardens (and is probably the same species), but is a smaller plant in all respects with flowers that are pink with no hint of rose.

From every region where primulas are found, there is at least one species of the Farinosae section, which proves their wide range of variability. They are found in the alpine meadows of southern Europe, in Japan, the Falkland Islands, Chile, Labrador, British Columbia to Colorado and Arizona, while the writer has collected from two stations in the eastern United States, the limestone ledges of Apple River Canyon in northern Illinois, and Mt. Pisgah, which rises above Lake Willoughby in Vermont. In these two places, as well as in the Great Lakes district, grows the altogether charming miniature *P. mistassinica*. In Illinois the tiny rosette of crinkled leaves is found growing in the crevices of the limestone, where the roots go deep for moisture. On Mt. Pisgah the plants are more easily collected, as they grow on a moraine through which spring water drips, and are matted with the roots of *Parnassia caroliniana* v. *montana*. Above the rosette, which is about the size of a quarter, the two to three inch stem rises to display an umbel of pink flowers very similar to those of *P. farinosa*. The foliage of *P. mistassinica* lacks farina.

P. frondosa, a little beauty from the Balkans, has a rosette about two inches in diameter, and a flower stalk from four to six inches high, on which is the dainty cluster of pink flowers. The leaves are dark green, thickly coated with farina on the under side. It is considered a bog plant, but it is growing, blooming, and seeding prodigiously in the garden on a shady terrace which is quite moist. The white form is especially attractive, and it came true from seed, which was a great surprise.

P. involucrata is an alpine from the eastern Himalaya, with shiny dark green leaves and pure white flowers. It does not grow in rosette form, as the leaves are held upright on short stems. *P. yargonensis* (*wardii*) is considered by some to be the Chinese form of this, but differs in color as the flowers are in shades of pink, rose, and lavender.

In June there is such a wealth of primrose bloom as almost to outshine the earlier display, for the handsome members of the Candelabra section begin to demand attention. *P. japonica* was described by Asa Gray as the "Queen of Primroses", and certainly no other species excels their beauty when a mass of them is in bloom. The brilliance of *P. japonica* 'Millar's Crimson' is accentuated by the lush light green foliage. The stems rise eighteen to twenty-four inches high, carrying often as many as five or six whorls of flowers. The pink blends of *P. japonica* are from the palest pink with a deeper eye to dark rose shades. They are planted with a spruce background, and the contrast of soft pinks and spruce branches is startling. One seedling has been named 'Pink Lady', which seems to suit it well.



Dr. H. S. Wacher

A stand of *Primula florindae*

Other Candelabras are members of the *Bullesiana* hybrids (*P. bulleyana* x *P. beesiana*), which gives still another color range, for they are soft orange. The glow of the Inshriach hybrids affords such stunning effect in July that they must be seen to be appreciated. They are healthy, robust plants and their flowers take bits of gold from the *P. bulleyana* parent and a limited amount of rose from the *P. beesiana* parent to create a sunset blend.

It is in the month of June that the Sikkimensis primroses begin to bloom, and they hold the stage well into August. On a June evening the perfume of *P. alpicola* hangs heavily in the warm air. This is known as the moonlight primrose, and one variety is called 'Luna'. It is a delicate lemon yellow, so pale that it seems almost transparent. The bell-shaped flowers are held in a one-sided bunch on a slender stem about five inches high. The other two varieties of *P. alpicola* are *alba*, which is extremely dainty, and *violacea*, which is a deep purple overlaid with farina.

P. florindae is the primrose in the Sikkimensis section with the most beautiful foliage, and if there were no ten inch (or three foot) stem on which the fragrant yellow flowers hung in a mass of thirty or more, it would be cultivated at Sky Hook for its foliage alone. The leaves are glossy dark green above and red beneath, held high above the crown on red stems, as if to demand attention; the roots are red also. It is said to be a streamside plant and even to wade out into the river in a gorge in the Himalaya where it was discovered by Kingdon Ward. The hybrid of *P. florindae* has flowers of a deeper yellow on the upper side of the petals, and buff beneath. It blooms from late June till early September. It enjoys wet soil, but has done nicely in medium moisture.

P. sikkimensis has yellow flowers in a cluster on a long stem of eighteen to twenty-four inches. The foliage is four or five inches long, and narrow with serrate edges. It is also fragrant. *P. secundiflora* is a purple-flowered species which holds the flowers in a one-sided umbel on a twelve inch stem. *P. vittata* is con-

sidered to be a form of this. *P. waltoni* is the smallest member of this group and has garnet flowers on twelve inch stems.

On the twentieth of September there is a note in the diary on primroses. *P. florindae* was still in bloom, and *PP. cortusoides*, *farinosa*, *japonica*, and the auriculas were giving some autumn flowers. It is interesting that the fall bloom of *P. japonica* is stemless, so that the flower cluster is nestled close to the crown. On October 29 the polyanthus had joined this list, as well as the blue 'Midnight'. The only one to be seen above the snow that fell on November 1 was the bright *P. mollis*, which appeared as a spot of blood on the white carpet. In December the seed stalk of *P. florindae* stood above the twelve inches of snow, and the pod, turned by the wind, had made a scroll on the surface of the drift as though to write its swan song for another year.

Harold Siesel

Harold Siesel, a director of the Society, passed away on April 16, at the age of fifty-two. One of our newer enthusiasts, he was extremely devoted to our organization, and he and Mrs. Siesel attended the New York meetings regularly. Mr. Siesel was elected director last year. He maintained a very fine rock garden at his summer home in Monroe, New York. He conducted his own advertising agency, Harold J. Siesel Company. The Society will miss his staunch support.

BOOK REVIEWS

Flora of the Rocky Mountains and Adjacent Plains. By P. A. RYDBERG. xii + 1143 pages. Reprint of second (1922) edition. New York: Hafner Publishing Co. \$15.00.

Rydberg's great work, out of print for many years, and so precious that it was often kept in locked cases in those libraries which possessed a copy, has long been sought by students of our western flora, but copies have rarely appeared on the market. It is greatly to the credit of Stechert-Hafner that they have again made it available.

The reprint, of the second edition, differs from the first edition only in the addition of a number of new species, extensions of range, and a few corrections.

As its taxonomic virtues and defects were, presumably, thoroughly discussed at the time of original publication, we shall here consider only its place in the taxonomic literature, and how well it may serve those who use it.

There is only one other work covering the same general region, the earlier (1909) "New Manual of Rocky Mountain Botany", by Coulter and Nelson. This book, in this reviewer's experience, has proved quite inadequate, even for Nelson's own state of Wyoming, and is at present completely out of date. Other than Rydberg's own "Flora of Colorado", and "Catalog of the Flora of Montana", which served as preliminary sketches for his greater work, there are only two other state floras dealing with any part of the region which Rydberg covers.

Of course there are more recent monographs dealing with many of the Rocky Mountain genera, but these are not readily available to persons who do not have access to large libraries, and some of these are decidedly unsatisfactory. One interested in Aquilegias will do well to consult Munz' monograph; Penstemons, those of Keck and Pennell, both incomplete; Primulas of section Farinosae, Smith and Fletcher. But most of the other papers which this reviewer has consulted have proved no more satisfactory than Rydberg's treatment of the same material, and in some cases less so.

The question of completeness naturally arises, for with the vast amount of collecting which has been done in the years since Rydberg's book came off the press, one would expect a great number of new species to have been described. Such seems not to have been the case, so far as really distinct species go. A few genera, such as Penstemon and Silene, have yielded really new forms, but very often plants which Rydberg recognized as distinct species have been shown, by further exploration and study, to be merely forms of a variable entity.

In preparing the text, Rydberg, to save space, often omitted from the description of a species characters that he had used in the key which he gives for each genus. This may at times cause trouble to the inexperienced reader, but in general both keys and descriptions are remarkably complete and comprehensible to anyone familiar with botanic terms—and for those who are not, there is an extensive and precise glossary.

Rydberg has often been criticized for being a "splitter": one who sets up distinct species on minor differences. This of course results in a large number of names with which the average gardener is unfamiliar, and may seem to place him at a disadvantage. Yet this recognition of minutiae, perhaps unjustifiable taxonomically, can often be of service to the gardener. For example, *Aquilegia rubicunda* was, a few years ago, a popular and readily grown garden plant; it is now regarded as a color form of *A. micrantha*, which is in general far less amenable in the garden. Similarly, Smith and Fletcher regard as synonymous *Primula angustifolia* and *P. brodiaeae*, of quite different behavior and temperament in the garden. It may well be that Rydberg's "splits" should be maintained by gardeners, if for no other reason than to distinguish an easy from a difficult form of the same species.

Occasionally Rydberg has split up familiar genera: for example, he does not recognize *Gentiana* at all, but divides it into four others. Here, again, the gardener may profit by knowing whether the species with which he deals belongs to *Anthopogon* (the fringed species), *Amarella* (a group of small-flowered and largely annual or biennial kinds), *Chondrophylla* (likewise small annuals or biennials), or *Dasystephana* (which contains such handsome species as *G. parryi* and *G. calycosa*). Of course, the usual synonym is given, so that one can always (and probably will) speak of *Gentiana barbellata* rather than of *Anthopogon barbellata*.

Altogether, in spite of its faults, the Rydberg work still stands as the only guide to the flora of the Rocky Mountains from Colorado and Utah north into

Canada, and will continue to hold that position for years to come. Anyone who desires to become acquainted with the plants of this vast region, or to know what he is acquiring for his garden, will find it indispensable.

Primroses and Polyanthus. By ROY GENDERS and H. C. TAYLOR. 143 pages.

One color and 15 black and white illustrations. New York: Criterion Books. \$3.00.

This little book is the first in half a century to be devoted to a once-admired group of plants which went out of favor during the Victorian rage for carpet-bedding, and which after a long struggle is at last returning to its rightful position as one of the most brilliant and effective subjects for the spring garden.

The principal value of the book, other than its delightful readability, lies in the fact that the authors have collected together a vast amount of primrose lore and fact, much of it not readily available elsewhere, and have added to this long lists of named varieties, with sufficient descriptions to make them more than the mere names they have previously been to this reviewer.

The first chapter, "The Return of the Primrose", traces the love of primroses, and rise and fall of interest in them, from 1500 to the present, with numerous quotations from the English poets. The next two chapters, on cultivation and propagation of the single forms, offer little that is new to experienced growers, but impress on one the relative ease of cultivation of these plants in the British Isles. Chapter IV, "Some Lovely Single Primroses and Polyanthus", presents a long list of named varieties, with brief descriptions. No distinction is made here between the "Julianas", and varieties free of the blood of *P. juliae*, nor are measurements ever given, so that comparison with the best of American varieties and strains cannot be made; the list of named Hose-in-Hose varieties which completes the chapter makes one wonder whether the seedlings from at least one American strain may not be fully the equal of these named clones.

Of special interest, and comprising largely material unavailable elsewhere, are the five chapters on double primroses. Their development from 1597 to the present is traced, and it is of interest to note that older writers referred to them simply by color, so that some reputedly old names such as Mme. Pompadour appear to be recent innovations. The history of the development of the Bon Accord doubles may offer a hint to would-be breeders of new double varieties. Most amazing is the mention of a deserted garden where doubles appear apparently spontaneously. Descriptions of the characteristic features of such bizarre forms as Jack-in-the-Green, Jackanapes, and Galligaskins, show further variation in the form which the primroses may take. Each of the co-authors has contributed a chapter on his personal experiences in the cultivation of doubles, which offer a slight hope that their culture may not be entirely hopeless in the eastern states. Of course, as the authors are British, and write of British conditions, a literal following of their suggestions is hardly advisable in this country. The section closes with a chapter listing a great number of double varieties, far more than one had ever suspected to have existed; most of these are of fairly recent origin.

The book concludes with chapters on the auricula, on showing primroses and auriculas, and on their pests and diseases. The illustrations are fairly good, but one wishes that all might have been in color.

The book makes delightful reading for all "lovers of these delights", and will probably win them new friends. It is, however, for its chapters on doubles that it is most valuable, and for which it occupies a unique place in garden literature.

AMERICAN ROCK GARDEN SOCIETY SEED EXCHANGE REPORT

April 18, 1955

Seed packets disseminated on request	3,689
Members requesting seed	150

Financial Report

Receipts week ending:	Jan. 29	\$16.12
	Feb. 5	39.27
	Feb. 12	24.53
	Feb. 19	13.02
	Feb. 26	3.66
	Mar. 5	11.35
	Mar. 19	7.37
	Mar. 26	1.00
	Apr. 2	1.64
	Apr. 930
	Total	\$118.36

Expenses:

	Nov. 1954 Envelopes	8.24
	Dec. 1954 Envelopes	7.21
	Jan. 1955 Envelopes	3.67
	Air mail lists	3.62
	Feb. 1955 Envelopes	9.87
	Postage	13.28
	Mar. 1955 Postage	3.32
	Apr. 1955 Air Post	8.12
		\$57.33

By checks to Treasurer

	Feb. 24, 1955	\$10.19
	Mar. 26, 1955	5.30
	Apr. 18, 1955	45.54
		\$61.03

Excerpts from letters:

"It seems to me that every year the list becomes more mouth-watering."

"Thanks for all your trouble—what a job!"

"Certainly some tempting things offered, I wish I could manage more."

"What a wonderful list it is."

"It would be interesting to know how many papers of seed you put up and send out and to how many individuals or institutions."

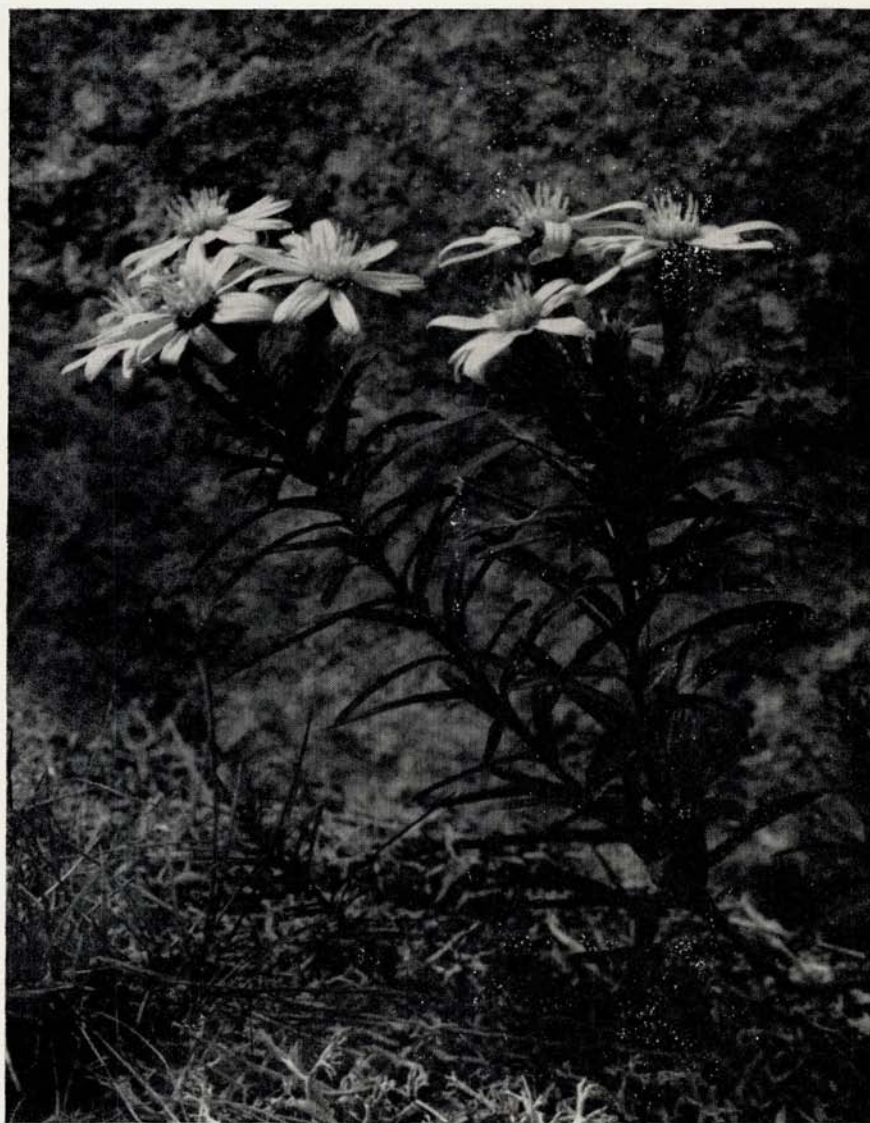
"If each seed contributor would give a few worded descriptions, of the rarities at least, to be published in the Seed Exchange List, I should think it would be of great help in getting the worthwhile plants disseminated."

"I was very pleasantly surprised to see that the number of contributors has increased."

"There are so many things I have not seen available elsewhere."

The Director appreciates the kind expressions for his work and wishes the contributors to know of the member's interest and gratitude.

BERNARD HARKNESS



Walter E. Hamblin

The savoryleaf aster

OUR SAVORYLEAF ASTER

STEPHEN F. HAMBLIN, *Lexington, Mass.*

IN OUR QUEST FOR PERENNIALS of dwarf habit but good bloom in September-October we have searched the north temperate zone, and our list of desirable plants is all too short. In the season of chrysanthemums one of the best composites is our savoryleaf or pine aster (*Aster linariifolius*) native from Maine and the Great Lakes far southward. As a late-blooming aster it has all the good qualities of a dwarf composite. It is wholly hardy to any cold or summer heat, thrives in poor soil, even dry and sandy, in fullest sun, and stays in very tight clumps from a woody root, one of the few asters not a "spreader". In dry fields there may be but one stem or a few, but in garden cultivation it becomes bushy and branched, with stiff stems well clothed with narrow wire-like leaves with rough edge.

This foliage seems untouched by insect or disease, unlike the famed *Aster dumosus* and its named forms, which must be drenched in nicotine and sulfur to retain the lower leaves. So it is a leafy, bushy plant with the foliage aspect of *Daphne cneorum* or *Iberis sempervirens*, deciduous in late October. The flowers are the usual aster heads, each an inch across, solitary but numerous, in the effect of a panicle. The rays are violet, varying somewhat in color, at times pure white. The plant takes kindly to cultivation, giving a better mass of color than *Aster dumosus*, as effective as dwarf chrysanthemums as a color mass, and in the violet range of the spectrum. The roots may be divided readily in spring and seeds are easily germinated. While *A. alpinus* is the best composite of mid-summer, the savoryleaf aster is the most showy and willing of small daisies at the season's end. More of our dealers should offer it.

USEFUL POLYGALAS

CARL STARKER, *Jennings Lodge, Oregon*

Polygalas offer us some very lovely but too little-known rock garden plants. They may be stiff and shrubby, or mat-forming. Among the best, *P. calcarea* rates as a top-notch alpine plant. It forms a dense evergreen mat of pleasing small foliage, which often turns purplish in winter. It may grow to ten inches or a foot across in time, but even small plants bloom profusely. Roots form on the prostrate stems, so that it may readily be divided if increase is desired. The spikes of wee flowers are only an inch high, and are a magnificent sapphire blue. The amazingly delicate and intricate form of the flower is delightful when viewed under a hand glass. It blooms freely in May and June making a quite pretty show of color. It grows well in any light soil but prefers sun and lime.

P. chamaebuxus is a dwarf alpine shrub that tends to run about in the rock garden, with underground stems that shoot up here and there, and soon make pleasing mats of dwarf oval boxlike foliage on tough little branches. There are two forms: *P. chamaebuxus* has pale yellow and gold pea-like flowers, while *P. c. purpureus* has yellow keels and rosy purple standards. The flowers are quite precocious and often appear in February or March. They like a light peaty or loamy soil and are not fussy as to sun or shade. They may be increased by division or by summer cuttings. My plants have never set seeds.

P. vayredae has much narrower, darker green foliage than the last, and grows two or three inches tall. Flowers are profuse and are of a deep orchid or gay rosy lavender tone. Both of these species are charming as a foil for early spring bulbs.

THE GOLDEN PEAKS

C. R. W.

GOLDEN OF CREST and gold at their hearts are the peaks of an apparently nameless little range in the Utah Wasatch. Their summits are crowned with a yellow volcanic rock known as tuff (not at all like the tufa of rock garden fame), while gold mines dot the canyons on their slopes.

I first saw them, shining and snow-streaked, from another crest eighty miles away. Having no suspicion that there might be other high peaks in that part of Utah, I was taken completely by surprise, and determined at once to pay them a visit. That was more easily decided than accomplished, for maps gave no clue to their location, nor could they be seen from the valley. My companion and I headed in their general direction, questioning one person after another, until at last we found a man who had hunted on their slopes, and who could tell us of a mine road which would take us fairly well up into the range. Its grade was steep, at times almost too much for our Ford, so that it was long after dark before we reached the summit of the road, and dodging cattle which raced before and alongside the truck, dropped down until we found a fairly level, though moist, camping place.

At daylight we were astir, eager to see what marvels the peaks had in store for us, but the way to the heights was long and fatiguing. We stumbled, by good luck, on a logger who was persuaded to rent us a chunky work horse, which we rode alternately until the trail, after winding for miles along precipitous slopes, was finally blocked by snowbanks and fallen trees. As by now I realised that my companion was ill-fitted for climbing at high altitudes, I left him behind with the horse while I continued on foot till at last I reached the treeline.

There, just coming into bloom, I saw for the first time *Aquilegia scopulorum*, most precious of dwarf columbines, for which I had been vainly searching when I first sighted the golden summits. The shales at that point contained little else of interest, although on a later trip I collected near them *Synthyris laciniata*, *Anemone globosa*, an assortment of attractive *Erigerons* that formed dwarf carpets, and farther on met a stream whose banks were lined with *Primula parryi* for miles. This time I had all I wished to see when at last I found the then almost legendary columbine, and after a while I went racing, with more enthusiasm than sense, down a sheer rock slide to my companion, only to find that right where I had left him were a few stray plants of the *Aquilegia*, in better bloom than those higher up. We picked up a few other treasures and with a slim but precious bag returned to camp, to tackle the "shales" at another point on the following day.

While *Aquilegia scopulorum*, in one of the best forms I have ever seen (Nevada hides an even smaller one that, in addition to the usual blue shades, indulges in an occasional bright red, and many rich purples)) is the gem of this range, there are a few other choice plants, including at least one endemic. Not much is found below the 9000 foot level, other than exquisite *Penstemon comarrhenus* in the sagebrush at the foot of the peaks, and *P. eatoni undosus* dangling its sealing-wax-red tubes in the canyon, but as one toils up the road there is an occasional plant of *Physaria didymocarpa* or *Corydalis aurea* to spur one on.

Only at the crest of the road, where one must leave the car and toil up and down hill through a maze of old wagon roads and trails, does one meet something really exciting. For here, so carefully hidden in the woods that I cannot always find it, is a patch of *Penstemon caespitosus suffrutescens*. Unlike the type,



The Golden Peaks from the first summit, at 12,000 ft.

C. R. W.

or *P. c. perbrevis* which makes wide inch-high mats on the floor of Joe's Valley many miles away, this subspecies grows into a tiny semi-erect shrub, perhaps three inches high and twice as much across, dotted with small blue-purple trumpets. It is a gem of a plant, but like most of its close relatives, far from amenable to cultivation.

It was at this point that we left the car on our second morning in the range, and wandered on through miles of aspen, with nothing to note in the undergrowth except a poor cluster-headed Penstemon, but the golden slopes were ahead. When we reached them, breathless after the long upward grind at 11000 ft., our hearts sank for they rose up in an almost sheer terminal bank for perhaps 100 feet. How, already somewhat exhausted, were we going to summon energy for an almost vertical scramble to the top, over loose and treacherous shales? Somehow we managed it, and we stood gasping on the edge of an almost level plain of the yellow rock fragments, which stretched on and on till at last it rose to a summit beyond which still higher peaks could be seen.

But the summits could wait, for here *Aquilegia scopulorum* is really at home; on one visit, thousands of flowers danced in the wind, all over a steep slope that fell away into a valley far below—on future visits there was not even a single plant of the columbine on that slope. There were two other very choice plants: *Polemonium viscosum* with its whorled leaflets, rich blue-purple trumpets and fragrance of skunk, and an anonymous phlox with low silver mats and long-tubed white flowers.

The summit now interested us, and we started the long steep climb, marvelling that not once did the shale slip under our feet. At last, the top, and below us the golden plain fell away, only to rise in a still higher peak. At first the slopes were utterly barren, but gradually our old friends reappeared, finally

congregating in goodly number in the saddle between the peaks. They were joined by two newcomers, a nondescript little potentilla, and *Silene acaulis* which we need not have come so far to find. A few stunted conifers had strayed here, far above timberline, for we had been above 12000 ft. for some time, and among them is a curious tiny Lupin, apparently biennial, which I take to be *L. kingii*. It makes only a small tuft of leaves, and the tiny blue flowers are so buried in the heart of the plant as to be scarcely noticeable. After taking specimens and photographs, our work was finished, and the next summit coaxed us on. But inky clouds were tumbling over the further peaks, and here, so far above timberline, was not the place to weather a thunderstorm, loaded down as we were with cameras, tripods, and picks—metal to draw the mountain fire. So we rushed back over the first summit, down over the steep shales, until we reached the shelter of the quakies.

Many times have I returned to those glorious peaks, the most beautiful that I have ever seen, and explored them more thoroughly. But the flora is not extensive, and it is love of the golden summits that draws me there again and again.

VISIT TO JAPAN

PART II

HAROLD EPSTEIN, *Larchmont, N. Y.*

OUR DESTINATION on this planned trip was Mount Norikura which is north-east of Nagoya in the Japan Alps and about 9400 feet in height. Accompanying us was a young Nagoya University student who was to act as our interpreter. We left Nagoya in the morning, spending three hours on a train traveling north to the town of Takayama as our first objective. Our interpreter was invaluable then, for not a word of English was spoken and much discussion ensued as to the correct bus to our mountain destination. The other passengers on the bus were a group of young men and two girls with packs on a mountain holiday with the same planned destination. In all our travels this scene of people either going to or from the mountains was commonplace and clearly indicated the popularity of this mountaineering sport. The few hours' bus trip through the mountains was on poor, narrow stony roads but thoroughly enjoyed. As the elevation became higher, our attention was diverted to many familiar plants on the roadsides—schizocodon, astilbes and anemones—until we eventually were above timberline.

We reached our destination late in the afternoon and found a stone and timber lodge marked Mt. Norikura Mansions. We were served a typical Japanese dinner near a wood burning fire and then walked about the immediate area until almost sundown. We retired to our wooden bunks rather early realizing that we would be awakened at 4:00 A.M. to enjoy the mountain sunrise. Our quarters and the cold were not conducive to a restful night and we were awake long before the pre-dawn signals. Within a few moments we were outdoors, heading toward the eastern observation point where the sun was just coming above the horizon. Below us was an ocean of clouds through which occasional mountain tops protruded to break the monotony of this grayish blue mass. Around us at various vantage points were all the other occupants of Norikura Mansions, for we then learned that this was the first clear morning of the season that produced so effective a dawn. For approximately the next hour we hiked through the partly snow-covered slopes and with the aid of our interpreter and a solicitous guide were treated to a view of the diminishing but protected *Dicentra peregrina* var. *pusilla*. The plants were few and scattered on the lava slopes and we were advised that collecting of this and many other natives was now prohibited. Photography at this early hour under the misty and weak light

appeared futile, but some photos were made to complete our records. Rather chilled, we returned to a typical Japanese breakfast—a small dish of pickled white radish and pickled unsweetened red cherries, a little bowl with soy sauce, a long dish with a package of dried seaweed which is dipped into the soy sauce and to be eaten with a bowl of hot rice. Then we were served hot soy bean soup, a raw egg and green tea. By this time we had mastered the chop sticks which were our only implements.

A long and difficult discussion then ensued, the result of which was that we were to use a jeep for part of our trip to Tokyo. We packed our bags, placed them on the jeep and then arranged to be met later in the morning after we had an opportunity of further exploring the flora. Walking in the opposite direction from our arrival we were soon confronted with an alpine meadow which startled us with its vegetation. Many acres cast a pink glow in the clearing atmosphere and we could hardly believe that the predominant plant was *Schizocodon soldanelloides*—a habitat that certainly did not coincide with preconceived ideas of its habit. Realizing that the closely related American species *Shortia galacifolia* and *Galax aphylla* are woodland plants usually carpeting damp rhododendron glades, we assumed that these Asiatic species would have similar habitats. We really never imagined that their schizocodon was a true alpine. In the same area was quantity of the prostrate *Rhododendron chrysanthum*, a plant I had seen in cultivation on a few occasions but never before in bloom. In fact a seedling in my home garden, now about eighteen years old, has never produced a flower. Another plant seen was in British Columbia and that first bloomed after some twenty years. In its native habitat it did not seem to be a prolific bloomer, large patches only producing a few separated flowers which were constant in color—very pale yellow. These plants generally appeared as a sub-shrub, usually under some prostrate pines (possibly *Pinus pumila*) or other dwarf shrubs. Other intermingled identified flora were *Vaccinium vitis-idaea*, and *Heloniopsis japonica* with its rose color spikes similar to our native *Helonias bullata*. Anemones and fritillaria were also present.

We were picked up by our jeep much too soon but had to maintain our schedule of reaching Tokyo that night. The return trip was a nightmare—three hours on the jeep over tortuous stony mountain trails to a bus terminal in the mountains, Kamikochi. Here we awaited a bus in company with a large crowd of mountain climbing enthusiasts. This bus trip was another three hours on narrow roads that really seemed impassable. At times it appeared that the bus was wider than the roads and always with a few thousand feet drop on one side. It was the most treacherous ride that we had ever had on any mountain. We were thankful when we reached the termination, where we rented a car to transport us one hour away to the railroad terminal at Matsumoto. Our interpreter was still with us and he seemed rather pallid and quite upset by the day's adventure. It was now late in the afternoon, and after cleaning up at the railroad station washroom and toilet (which incidentally is mixed—men and women—a custom still prevailing), we had some food, the first since our 6:00 A.M. breakfast. Our interpreter, Kiroku Hanai, saw us onto our train for Tokyo and then departed for another train to his home in Nagoya. This semi-express trip to Tokyo was about eight hours so that our travel time that day was a total of fifteen hours—a very full and tiring day, but filled with memorable experiences.

During the next few days we made our headquarters at the Imperial Hotel in Tokyo and devoted our time to exploring the surrounding areas each day for different interests. On one of these days a taxi was hired for a trip into the suburban nursery area. We were joined by Mr. Ozawa, his dental student son, Moto, and a young lady, Yoshie Sumi (an eighteen year old college freshman)



Harold Epstein

In Mr. Ozawa's garden. Left to right, Mr. Ozawa's younger son, Mr. Ozawa, his elder son Moto, Mr. Epstein, Mr. Ito

who was particularly helpful in interpreting. We drove north out of Tokyo into the Angyo area which is devoted to many small nurseries. Although only a comparatively short distance out of a major city, the countryside and towns appeared to be in some remote part of the island. The roads were narrow and muddy and we passed through many typical small farm areas with primitive wooden homes, the interior of many of them completely open to view. Our first stop was at a nursery (the most imposing of all) that had two small new greenhouses which were being devoted primarily to growing flats and pans of new seedlings, most of which were American species of azaleas and rhododendron. We were greeted by Mr. Yashio Shiba who directed us through his nursery after the usual tea formalities. There was a very diversified group of herbaceous and woody plants being grown but rather few of each. There were some unusual forms of maple here, but all in small sizes. After partaking of our box lunch which we had carried with us (for want of any proper eating facilities in the area), we then drove with Mr. Shiba to some of the neighboring small nurseries where each seemed to specialize in one or two bonzai species of which *Pinus pentaphylla* was one of the most popular. Other nurseries had larger specimens of various conifers and shrubs all neatly pruned and shaped, most of them in containers or tubs so they could be moved easily. From there we left for another town, Omiya, and en route passed some farms where thousands of herons were nesting. The trees were white with them and there were hundreds of nests with young ones high in the branches. We then visited Mr. Kyuzo Murata, owner of the Kyuka-en Bonsai Gardens where we saw and photographed a superb private collection of many trees and oddities. The center of attraction was a huge cast

stone trough resembling a billiard table on which many of the trees were set. There were about two inches of water in the trough which materially helped in their maintenance. The water served as a reflecting surface to carry more light to the underbranches of the plants on display and helped to maintain more humidity for the plants, all of which were in full sun. Throughout the garden were many individual pedestals which resembled bird baths, also containing water and a revolving platform upon which a valuable bonsai plant was set. This easily turned so that all sides of the plant shared in the day's sunlight. Included in this collection were beautiful aged specimens of *Picea jezoensis*, *Pinus pentaphylla*, *Juniperus chinensis* var. *sargentii*, *Pinus densiflora*, *Pinus thunbergii*, *Pinus parviflora*, *Zelkova serrata*, *Acer buergerianum*, *Acer palmatum*, etc. Some of these were growing on or in pieces of stone rather than in clay pans. Most of these oddities had growing at their base associated plants such as *Vaccinium vitis-idaea*, *Lemmaphyllum microphyllum* (the bean-leaved fern), *Vaccinium uliginosum* var. *alpinum*, *Amitostigma gracile*. My notes indicate varying ages for these specimens, some as much as 600 years old, many others 200 to 300 years. These plants require constant skilled care and cannot be neglected for the short-term period of time. It was now late in the afternoon and we proceeded back to Tokyo through the very congested traffic of workers returning to their homes.

The following afternoon we were guests for lunch at the home of Mr. and Mrs. Ozawa in Tokyo. Our hosts had prepared a feast of native delicacies, serving us an assortment of foods to please our palates. With the interspersed conversations and the visits and interviewing by some newspaper representatives, the greater part of the afternoon was consumed. We had hoped to devote some time to the garden and the extensive collection of plants that the Ozawas had assembled but our schedule did not permit for more than a hasty perusal of it. We were promised that the next visit would permit us to devote more time to horticulture rather than to feasting. Our hasty departure was necessary because of a scheduled dinner and lecture that evening at a meeting of the Tokyo Wild Flower Society. During this event we had the pleasure of meeting some of the keenest of plants people of that area, both men and women. Our interpreter was the well-known botanist, Mr. Takeda, who was challenged with the task of instantaneously interpreting the Latin names of native American plants into Japanese as fast as they were projected on the screen. The later discussion period proved particularly interesting and amusing. It was a wonderful informal evening which permitted us to become better acquainted with this enthusiastic group.

(To be concluded)

ERITRICHIUM

While visiting the N. A. Hallauer nursery last spring, we could hardly believe our eyes when we noticed small tufts of silver dotted with little pure blue flowers. Hastening to the bed in which they grew, we found we had not been mistaken: here was *Eritrichium elongatum*, King of the Alps in its American version, growing and flowering in an ordinary nursery bed of sandy soil. True, the plants were collected ones, and had been there only since the previous autumn, but at least they had survived an open winter, and for the time at least, looked happy.

SALMAGUNDI

A MOST ATTRACTIVE BOOKLET, "The Dolomites, the Flower Garden of the Alps" has been issued by the Provincial Office for Tourism, Bolzano, Italy. The colored plates, of which there are twenty-one, are magnificent, and include one of an alpine meadow behind which rise dolomitic crags, and such plants as *Dianthus glacialis*, *Saxifraga aizoon*, *S. oppositifolia*, *Phyteuma comosum*, *Rhodothamnus chamaecistus*, *Anemone baldensis*, *A. sulfurea*, *Gentiana verna*, and *Androsace clacialis*, which most American gardeners know only by name. After admiring these plates, one can hardly resist making reservations for a summer in the Dolomites. We do not know whether the booklet is generally available, but there can be no harm in writing to the address mentioned.

* * * *

Mrs. Walter T. Colquitt of Shreveport, La., a member of the American Rock Garden Society, was named Woman of the Year in Horticulture by the Horticultural Travel Foundation, and was awarded a membership, valued at \$1000, in the European Garden Tour of the Foundation. Our congratulations are extended to Mrs. Colquitt, and we regret that the information received does not permit our citing the accomplishments which led to this award.

* * * *

Will Ingwersen, well known to readers of the BULLETIN, is reported to be planning a collecting expedition to the high Andes for next December and January, with the high-mountain geraniums and rosulate violas his special objectives. Anyone interested in subscribing should write directly to Mr. Ingwersen at East Grinstead, Sussex, England.

* * * *

The Journal of the Royal Horticultural Society for April carries a long account of Kingdon-Ward's plant-hunting expedition in North Burma during 1952-53. A large number of plants which will probably be hardy in England, including some 60 alpiners, were collected, although the peaks visited did not exceed 12,000 feet, but difficulties of terrain and weather hampered exploration at the higher altitudes, and Kingdon-Ward is of the opinion that less than half of the species occurring on the peaks were found.

* * * *

Lilium papilliferum, collected on a recent Rock expedition, is offered this year by a western wholesale grower. It may be of interest to rock gardeners, for it is described as growing not more than 12 inches high, with not more than three deep purplish-maroon flowers with snuff-colored anthers.

* * * *

The method of seed germination described by R. C. Mott in the BULLETIN of last October has been used this spring for a wide variety of alpiners and taller perennials, with truly amazing results—and a few unexpected defeats. When the results are finally tabulated, we hope for a full report from Mr. Mott, but even now it can safely be said that his method is more satisfactory than any other of which we know.

* * * *

Perhaps a word of caution is in order, with respect to the use of cigarette butts around primroses, as suggested by Alice Baylor. It is known that the tobacco virus can be transmitted to such plants as tomatoes by means of cigarettes, and in our present state of ignorance of many plant viruses, it may well be that the evil results of Mrs. Baylor's suggestion will more than offset the good ones.

We have been requested to furnish a list of four books on rock gardening suitable for beginners, and would appreciate suggestions from readers. The books by Stephen F. Hamblin, Archie Thornton, Louise Beebe Wilder, and James Bissland are useful, but probably none of these is still in print. English books may do much to arouse interest, but deal with conditions not found in most of America, so that following of the instructions in such writings may lead to disappointment.

Perhaps the publication most readily available is Cornell Extension Bulletin 403, "The Rock Garden", by Henry T. Skinner. Brief and well-illustrated, most of its material is directly applicable to conditions in the Northeast. It may be had by writing to the New York State College of Agriculture, Cornell University, Ithaca, N. Y. It is free to residents of New York, while non-residents may purchase it for ten cents.

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