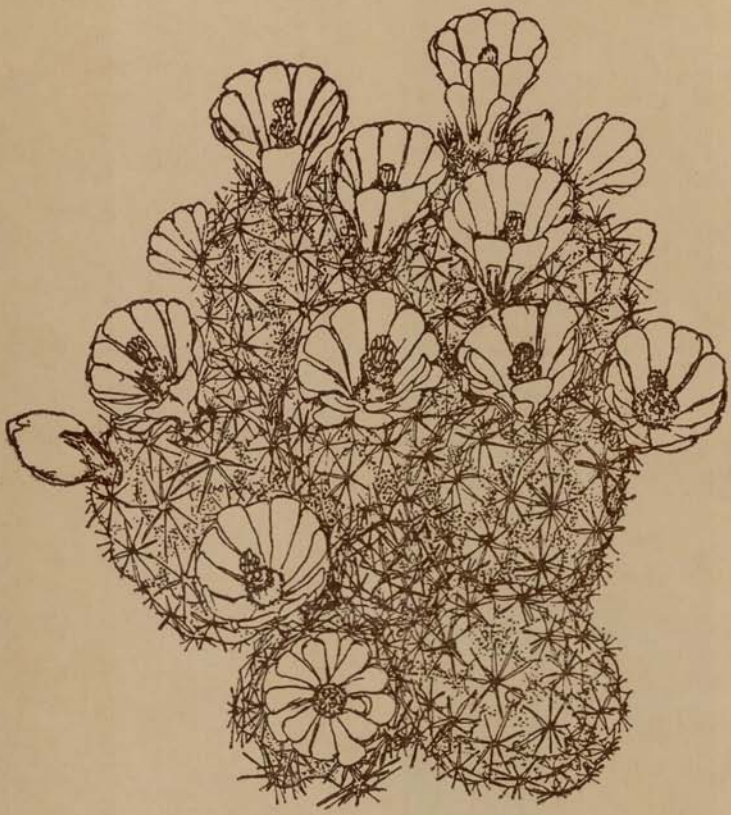

Bulletin of the American Rock Garden Society

Vol. 38 Winter 1980 No. 1

The Bulletin

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Front Cover Picture—*Echinocereus triglochidiatus* var. *melanocanthus*—Panayoti Callas, Boulder, Colorado

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Vol. 38 Winter 1980 No. 1

Bulletin of the American Rock Garden Society

Cacti: America's Foremost Rock Plants
Part II

ALLAN R. TAYLOR and PANAYOTI CALLAS
Boulder, Colorado
Drawings by Panayoti Callas

The "Hedgehog Cacti"

Echinocereus viridiflorus provides a sort of bridge between the Ball Cacti mentioned above and its Hedgehog relatives. In the north, the Greenflowered Hedgehog rarely develops into the columnar form of the other Hedgehog Cacti, but forms low, rounded clumps like the Ball Cacti it so often accompanies in the wild from Wyoming southward. It, too, is a grassland species, but seems to prefer somewhat less alkaline conditions than *Coryphantha*, typically occurring on gravelly benches and steep slopes in the shortgrass prairie where it can form dense colonies among *Mertensia lanceolata*, *Leucocrinum montanum*, *Lithospermum multiflorum*, *Calochortus gunnisoni* and *Pulsatilla patens*. When the dishevelled seed-heads of the Pasqueflower begin to mature, hikers are apt to walk past hundreds of Greenflowered Hedgehogs in full bloom without noticing them, for this is one of the least conspicuous of its family in the West.

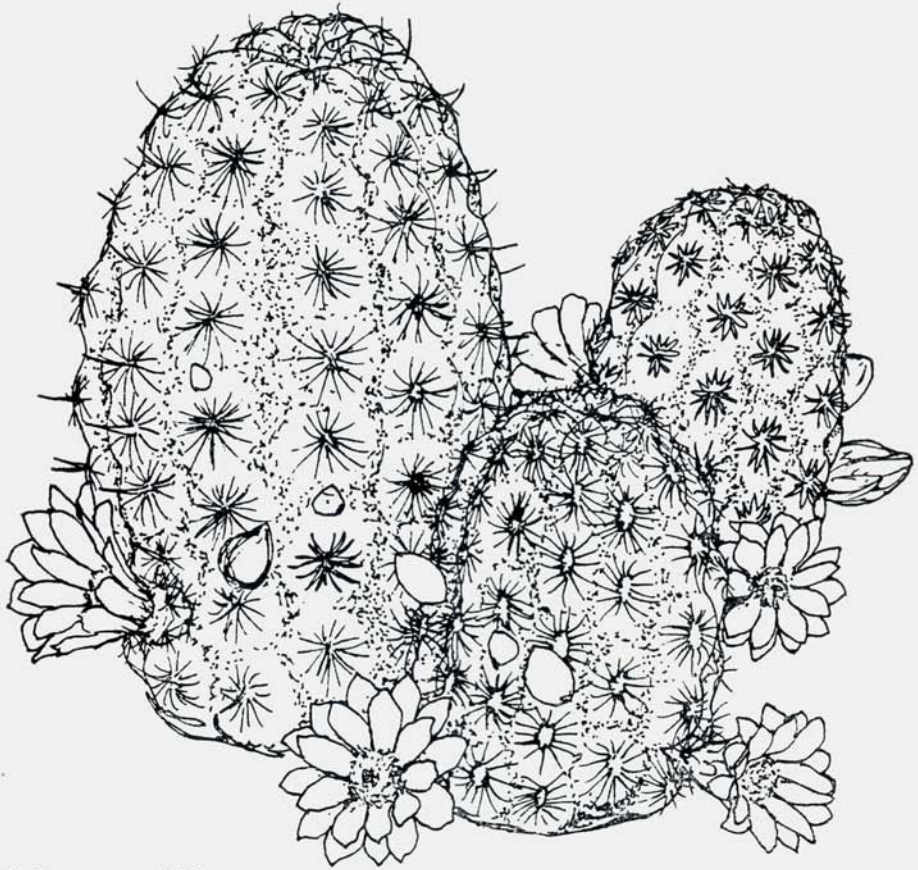
It is impossible to confuse this cactus with any other when you find it in bloom. Whoever notices one in flower is amply rewarded, for the flowers, though diminutive, are tremendously variable in hue, from lemony yellows

through the entire chartreuse spectrum. They are always produced along the lower portion of the stem — usually near ground level — never from the top part of the stem as is the case with the other ball cacti or its *Echinocereus* relatives that share its range. It is usually floriferous, each crown encircled with a ring of inch-wide chalices for a week or more in early June. The more southerly forms of this cactus produce stout columns six or more inches in height, but the typical northern plants are generally less than three inches tall, often producing several heads. The radial spines are slender and comb-like. Any colony may include individuals whose spine color varies from dark red to white, most of them lacking central spines, while others may have centrals over an inch in length. This sort of variation may sound slight, but it can result in plants that look altogether distinct from one another. Only the stodgiest gardeners can resist getting on their hands and knees to examine a colony in the wild. Most of the Colorado habitat of this lovely cactus is now under cultivation, overgrazed or bulldozed to make way for the virulently spreading cities of the Eastern Slope of the Rocky Mountains. How many fascinating variations in this cactus have been lost because of this?

The other *Echinocerei* of the Southwestern Uplands are incomparably showier than the Green-flowered Hedgehog. If it's possible to walk past hundreds of the latter in full bloom without noticing them, it's hard to miss a single blooming plant of the others, even from a bus! Few plants can rival the Hedgehogs when it comes to size or sumptuousness of blossom. These include some of the most popular cacti grown in pots; few people realize that their complacent pot plant is in reality a native of cold-weather climates yearning to join its fellow wildflowers in the rock garden beyond the storm windows. When you consider the fascinating variety of spination in this group, the magnificent mounds they form in time, their ease of cultivation and hardiness, it is no less than scandalous that so little attention has been paid to them in rock gardening literature. Oh yes, the flowers: they are almost an embarrassment of riches — sometimes five inches across with fifty or more silky, irridescent segments that run the gamut from white and yellow through orange, scarlet, vermilion, magenta, purple and pink.

If their color, size and texture strike the rock gardener as somehow excessive in the (often gaudy) rock garden, what would he make of the spectacle that hordes of Hedgehogs can present on the mountains and deserts of the American West? They are magnificent, it's true, but this should hardly be held against them. Over much of the West, the blooming of the Hedgehog Cacti is a sort of culmination of the year. After the long drouths of summer and the dry and windy autumn and winter, the brief climax of blossoming in late spring comes as a sort of triumph of delicacy over the relentless austerity of the seasons. Perhaps if we rock gardeners begrudge these cacti their flowers, might we not be prompted more by envy and chagrin than any genuine aesthetic qualms? If the Hedgehogs grew on the beaches of the Mediterranean, or the Asiatic steppes, they would doubtless be more acceptable, their flowers notwithstanding.

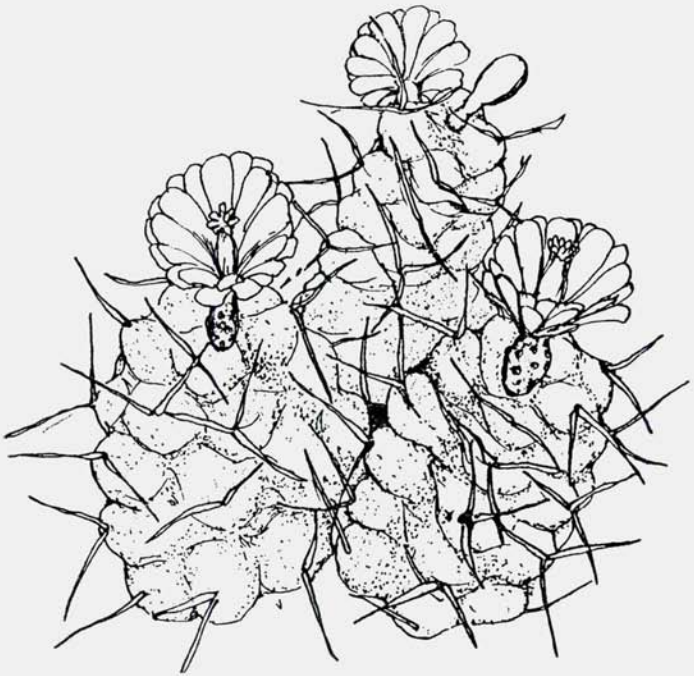
No less than five broadly defined species clusters of *Echinocerei* abound over much of the Southwest where their tolerance of sub-zero temperatures is beyond question. All five of these



Echinocereus viridiflorus

groups comprise plants which form columns of greater or lesser height, with more or less of a tendency to clump. They all produce their flowers above the areoles that line the ribs — usually budding on the younger, higher portions of the stem. The spiny, sperical or ovoid fruits are often brilliant burgundy in color, fleshy and juicy, filled with many tiny, black seeds. Here the resemblances end.

In bloom, the Claret Cup Cacti are the most easily distinguishable of the Hedgehogs. The variation in stem size, shape, growth habit, spination and choice of habitat within this group is bewildering, but the perfectly formed badminton birdie of a flower is instantly recognizable. Seeing it, you know the protean plant beneath is a Claret Cup. Excepting a few tender relatives and some suspicious hybrids, the flower of the Claret Cup cleaves to the scarlet end of the red spectrum ranging from orange through tangerine to a brilliant crimson. The irridescent green style typical of the *Echinocerei* contrasts strikingly with its brick-red background. Only in the Indian Paintbrush are these colors combined so effectively. The individual flower remains fresh longer than any other hardy cactus blossoms: each usually lasts several days, even in hot weather. The



Echinocereus triglochidiatus var. *triglochidiatus*

flowers of its magenta and yellow flowered Hedgehog relatives on the other hand commonly wilt after a single day in hot weather, invariably closing in the evenings. Offsets in the Claret Cup, when they are produced, literally pop fully formed out of the strongly ribbed sides of mature stems. Many botanists have despaired of neatly pigeonholing the endless permutations and intergradations of this complex. They usually give up and lump them all into *Echinocereus triglochidiatus*.

This mountain of a name includes plants that grow into solitary, corpulent barrels that can attain half a meter in height as well as tiny pincushions that offset, in time, to produce vast mounds a yard or more across with hundreds of inch-wide crowns. The fuzzy areoles produced along the ribs can have two, or twelve — or more — spines that can be fine as a hair, barely a centimeter long in var. *polyacanthus*, or coarse and bristly, almost bony excrescences in the type variety, wildly tousled in var. *mojavensis*, heavy and thick in var. *gonacanthus* or altogether absent in var. *inermis*. These forms and others occupy an astounding variety of ecological niches.

One sort thrives on alkaline flats in the Southern Great Basin. Others appear on limestone outcrops and gypsum barrens in central and southern New Mexico. In Saguache County, Colorado, the Claret Cup grows in the tiny crevices of volcanic dikes entangled with the Zig-zag Cloak Fern. Although this group is distributed more to the south than any other cacti so far discussed, the Claret Cups are nonetheless mountain cacti. The finest clumps invariably grow on rocky ground, often on sheer rock faces — even almost inverted on the concave

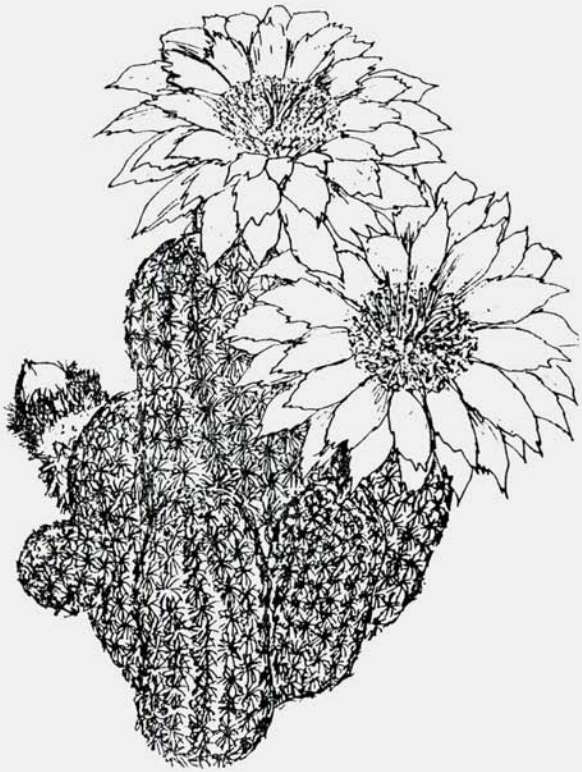
underfaces of sandstone cliffs. We don't mind mentioning the exact locality where we saw a particular colony of this remarkable cactus since no one is apt to extricate it from an inaccessible cliff in a closely guarded state park. On the crags below the Box Canyon outside of Ouray, Colorado, large mounds of *Echinocereus triglochidiatus* var. *melanocanthus* cling to a vertical cliff, emerging from dense mats of moss and perennials that stud the granitic chasm below the falls. This mesic mountain valley, over 8,000 feet in altitude, in the last place one would expect to find a cactus, but there it is.

Three large-flowered, magenta Hedgehogs occur over much the same range as the Claret Cup. These offer almost as much variation in stem, spine and flower as the Claret Cup complex. *Echinocereus engelmannii* is prevalent in western Arizona and desert California. *E. fendleri* predominates in the central parts of the Southwest, while the many forms of *E. reichenbachii* prevail in the eastern parts of New Mexico, southeastern Colorado and upland Oklahoma and Texas. For northern gardens, there is no question that the last of these is the best Hedgehog for the rock garden. *E. reichenbachii* — popularly known as the "Lace Cactus" — must be one of the frontrunners for designation as the loveliest North American wildflower.

If you were to tell a rock gardener that there exists a plant that produces a wealth of flowers four or five inches in diameter of the purest satiny textures in pink, rose or deep purple; that, furthermore, this plant is neither a weed nor a mimp, that it grows compactly in a neat mound with a unique habit never exceeding eight inches in spread and rarely more in height; that is long-lived, bone-hardy and available for nickels at almost any neighborhood grocery store — you would likely be pronounced insane, especially when you informed your skeptical friend that the subject of your discourse is a cactus.

The Lace Cactus must be seen and grown to be believed. Typical specimens of the type variety *reichenbachii* are usually single stemmed — producing offsets and branches as they age. The stem is rarely more than eight inches in height (except in venerable, ancient specimens), fluted, with many shallow, parallel ribs. These ribs are closely and concisely spaced with areoles that sprout miniscule, radial spines that are so symmetrically placed that each plant really does appear to be dressed in lace. This semblance is enhanced in the common forms with pure white spines. This is the prevalent form over most of the eastern and southern range of the species, abounding on limestone prairies in Oklahoma and northern Texas.

Echinocereus reichenbachii var. *baileyi* is often separated from the typical Lace Cactus as a distinct species on the basis of many minor, but consistent, characters. For the gardener it is undeniably different and worth growing in the smallest collection of cacti. Although the young plants of this form are generally single stemmed, older plants produce many offsets, each attaining about ten inches in height. It varies tremendously from plant to plant in the color of its long, shaggy spines that completely conceal the body of the plant. They range in color from deep rusty reds and browns to pale off-white tints. These spines emerge at unequal angles from the areoles, rather than in the neat, comblike arrangement of the typical Lace Cactus, and the spines interlock. The effect of a typical colony of this plant, which grows in dense stands on its native, granite hills, is of so many unkempt extraterrestrials.



Echinocereus reichenbachii var. *reichenbachii*

The flowers are no less other-worldly in their way, for this giant-flowered plant is magnificently floriferous. The flowers are often four inches across, more vase-shaped than in other varieties of this complex. One of our established individuals of the Witchita Mountain Hedgehog produces repeated flushes of flowers from late May until frost. In late July of 1978 when the cactus season was technically past, it opened fourteen flowers simultaneously on just four heads.

This taxon occurs in a restricted area of only a few miles square in the Witchita Mountains Wildlife Preserve of southwestern Oklahoma. In the protection of this preserve this cactus has prospered no less than the free ranging Bison and Longhorn Cattle which share its habitat and thrill visiting cactophiles with their size and grandeur. In the rocky clearings of the Preserve, between the open forests of Post and Blackjack Oaks, these cacti occur in masses embedded in thick mats of Clubmoss, *Pellaea ternifolia* var. *wrightiana* and a wealth of Southern Great Plains wildflowers.

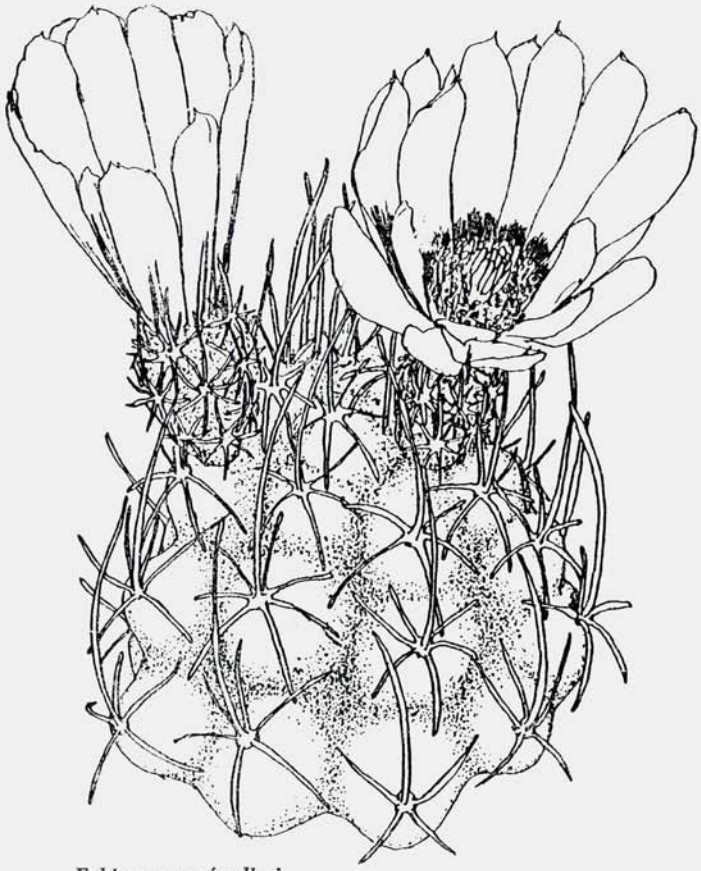
E. reichenbachii var. *albispinus* is another rare variety of the species also restricted to Oklahoma. In some ways it seems to constitute an intermediate phase between var. *reichenbachii* and var. *baileyi*. The spines are less concise than in the Lace Cactus, but even whiter in color. It appears to be one of the most caespitose of the hedgehogs: a

single crown can sprout a dozen or so offsets in a few years' time. The flowers, produced several weeks ahead of the other varieties of *reichenbachii*, are of a bright pink color and have a peculiar, satiny sheen. They reflex their segments more than other forms in this complex, often obscuring the stems from sight. So far, this seems to be less prone to reblooming than other forms of the species, but the neat mound of glistening, white heads barely four inches tall would warrant a place in the garden even if it didn't produce such magical flowers.

E. reichenbachii var. *perbellus* is the only other frequently encountered variety of the Lace Cactus. This prevails along the northern and western extensions of the species' overall range. It generally has only single crowns, rarely more than four inches in height. The flowers are similar to the type variety in their open shape, if a little smaller perhaps on the average. Since it grows in the rather dry plains of Colorado, New Mexico and western Oklahoma, this form is less tolerant of excessive moisture than the others; otherwise its diminutive stature would recommend it even more to the rock garden.

Where cities or agriculture have not supplanted them, one or another of these varieties still occur in some abundance. These cacti are native to regions characterized by considerable summer rainfall, severe winters alternating between sub-zero cold and sudden thaws. Therefore they are ideal subjects for cold-climate gardens in wetter regions. Development has already restricted the range of these remarkable plants sufficiently so that conservation of wild populations should tug at the conscience of all of us. Happily, there is no need for anyone ever to have recourse to collecting these in the wild, for no cacti have been more intensively or successfully propagated than the Lace Cactus. Because it can be grown rather quickly in greenhouses to the saleable height of two inches or so, it has become a favorite with nurserymen who provide grocery store flower departments with tiny succulents. Assuming that marauding children have not spent a maniacal half hour exchanging labels while their parents are diverted in the canned foods aisle, one can be reasonably certain that any cactus labelled ***E. reichenbachii*** in a grocery store will prove true to name. If it is, it is certain to be as hardy as the phlox and penstemons it accompanies in the wild. How happy such a plant, rescued by a rock gardener, for otherwise it would probably spend a miserable decade languishing in a desert dish in some dark, bleak and smoky parlor before death released it from its torment. Alternately, it can be raised from seed which germinates rather well for a cactus. Seedlings grow slowly in their first year, but with careful fertilization a blossoming plant can be produced in three years.

The New Mexico Hedgehog *(Echinocereus fendleri)* is just as beautiful in its own fashion. The flowers are just as large and showy as in the Lace Cactus, occurring in much the same pink-magenta shades, but the spines in the hardier forms are generally fewer in number (usually less than ten and often less than five) and much heavier and longer. It has the same habit of producing a single column — occasionally three or more in a clump — that rarely exceeds five inches in height in the type variety. It occurs just to the west of E. *reichenbachii* in the drier reaches of New Mexico and eastern Arizona, extending a short way into Colorado and Utah. It is more of a desert plant than the Lace Cactus since the rainfall over much



Echinocereus fendleri

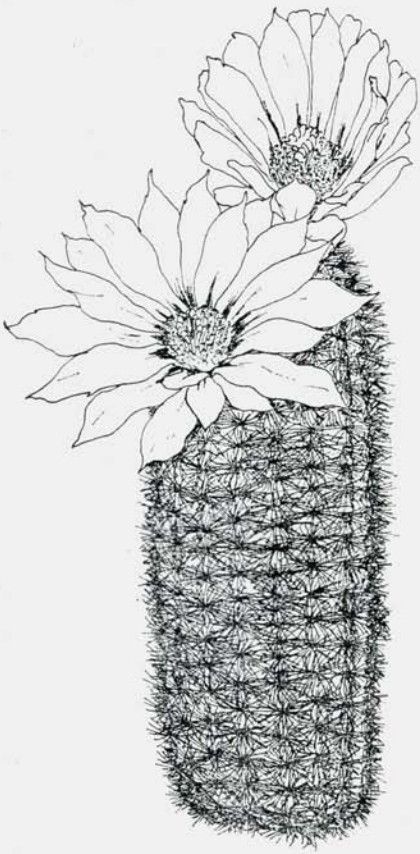
of this region is less than ten inches annually. It demands perfect drainage and heat to grow at all in the garden, where it is a showpiece if successful. Seedlings grow more slowly and reluctantly than is the case with its more easterly cousin. Although thousands of mature plants lie in the path of such rapidly growing cities as Albuquerque, collecting the New Mexico Hedgehog is often futile. It is worth the effort to procure plants from seed which adapt more readily to garden conditions than hoary clumps from the desert.

There are a number of other varieties of this complex that are found in the sub-tropical stretches of the Chihuahuan and Sonoran deserts, some of which have been segregated into a separate species complex — *E. fasciculatus* — by some taxonomists. These striking hedgehogs tantalize visitors to Tucson and Phoenix in the spring. But even if garden strains were available from populations of these Hedgehogs selected from the highest extent of their range along the Mogollon Rim, it is doubtful that they would ever prove durable in cold climates. They are quintessentially desert plants that yearn for nine months of extreme, dry heat to thrive — even if they adapt to tolerate a certain degree of frost.

The Purple Torch Cactus *(E. engelmannii)* offers greater hope on this score, however. It, too, is a desert cac-

tus that is found in the hottest and driest part of the Mojave and Western Sonoran deserts. Several forms of this remarkable plant extend far north of *E. fasciculatus* in the wild. Seedlings that came from seed collected from these northern stations have weathered several seasons in Boulder, although many more years will be needed to assess their durability in cold climates. The Purple Torch is not only the westernmost of the *Echinocerei*, it is generally the largest. Some forms approach two feet in height, producing correspondingly large and showy flowers. It is often featured in Southwestern gardens and highway beautification plantings because of this. The plant produces massive white or yellow spines that are coarse and long, with prominent centrals. Few plants can compare with the spectacle of a Purple Torch in flower. A hardy race would furnish a breathtaking centerpiece for a dryland rock garden.

The rugged terrain of the American Southwest has done more than frustrate ranchers and highway planners. Over the eons as plants have shuffled back and forth through this vast region, colonies of many have been stranded here and there, far beyond their later distributional ranges. In time, these may evolve into completely new species (which explains the rampant endemism of this region) or at least develop a resistance to the rigors of their changing microenvironments. *Echinocereus pectinatus* var. *neomexicanus* is a case in point. Better known by the superseded name of *E. dasyacanthus*, this yellow-flowered "New Mexico Rainbow Cactus" is typically a plant of barren, limestone slopes in the Chihuahuan desert where conditions in the summer are so intensely hot and winters sufficiently mild that no rock gardener would dream of attempting it in a bitter climate. A cactus botanist of our acquaintance was recently surprised to find this cactus growing at a high elevation over two hundred miles to the north of its normal range. Although this distance may not sound so great, the new-found colony represented a form that had adapted to radically different conditions from the typical plants of this species. There is no question that the conditions are far colder over a much longer period of time in the winter, and summer temperatures far milder than in the habitat of the more southerly colonies, so that this colony promises to provide an unquestionably hardy strain of an otherwise somewhat tender cactus.



Echinocereus pectinatus var. *neomexicanus*

Similar colonies of *Mammillaria heyderi, Echinocactus horizonthalonius, E. texensis, Epithelantha micromeris* and other usually tender cacti have been found by adventurous searchers who are beginning to disseminate them among hardy cactus enthusiasts. When these dozens of distinct species are compounded by carefully selected horticultural forms based on variations of plant shape, spination or flower color, it's no wonder that some northern gardeners are tempted to specialize in the family.

WHAT IS AN ALPINE HOUSE?

JAMES L. JONES
Lexington, Massachusetts

The following came to the editor as a query. Though we have had a few articles about this adjunct to the rock garden (Vol. 26, pp. 50-54; Vol. 36, p. 137), we have not perhaps had a comprehensive one.

Alpine houses are used for such disparate purposes by their owners and are so varied in size and style that it is hard to give specific details about construction and management. They include everything from small home-made plastic covered versions, built either free-standing or as lean-tos against a house or barn, to the sun heated pit-house with a glass or plastic roof sunk to the eaves in the ground, to the most sophisticated greenhouse construction complete with heating, thermostatically controlled automatic vents, and ventilating fans, misting systems and, yes, even air-conditioning and refrigerated benches. In brief an alpine house is a cool greenhouse in which the minimum temperature ranges from about 15° to 35°F. and the maximum is kept as low as possible. Excellent ventilation, cool temperatures and good light are the three most important factors in an alpine house.

Though such a construction, where watering can be controlled and the extremes of weather are to some extent ameliorated, makes it possible to grow and flower plants, which might be difficult if not impossible in the open garden, an alpine house, as is true of any artificial environment, presents its own problems.

An article on the subject has been promised and, in the meanwhile, this is Mr. Jones's version and an apparently successful one. — Ed.

The concept of the alpine house is a pervasive one in rock gardening. Plants are listed as needing its shelter from excessive cold and moisture, with the implication that this is a common and well known gardening adjunct. But in the several years I have been reading the Bulletin, the alpine house has not once emerged from the background into specific detail.

I have had a sunhouse for some time, some parts of it serving as an alpine house. I have experimented with quite a few plants, rock garden varieties as well as larger shrubs and vines, but it has been hit and miss. I suspect that there is a large, established group of appropriate plants out there that I have not yet tapped.

I would like to mention some of the plants that have done well for me, and would like to hear, either directly or through the Bulletin, what other people are growing. In particular I would welcome contact with gardeners in the Boston (Massachusetts) area whose alpine (or sun-) houses could be visited.

My sunhouse is a fairly small (six foot by nine and a half foot) lean-to built to enclose the front steps. It contains three troughs and a three foot by four foot planting bed. The minimum temperature I have recorded was 12°F. on a -15°F. night, but the soil never freezes to a depth greater than a third of an inch and then only overnight and in the front and lower sections.

As to the plants, I'll tackle them in order of bloom. Right now, the third week in January, there are five in flower: *Rosmarinus officinalis prostratus*, an obligate bonsai and absolutely essential, cascading over one of the troughs; *Viola odorata*, perking up on any sunny day; an out-of-phase seedling of *Primula polyanthus* 'Gold Laced'; the last remnants of *Merendera sobolifera;* and in yellow flame above them all, *Jasminum nudiflorum.* In years past they were joined by *Cyclamen coum* and *C. pseudibericum*, but they died out, from undernourishment I think.

Next I'll be looking for *Scilla tubergeniana*, by the end of January if the thaw continues. That's another essential one. *Crocus korolkowii and C. ancyrensis* could join it but they have been chancy, another case of malnutrition. Various galanthus will be in there somewhere, but they have not made much of a show.

Daphne odora was looking fine at this period in past years, but then succumbed to something over the summer. That will be reestablished. An *Iris stylosa* came on in March, contrasting splendidly, though disjunctly, with the *Camellia japonica* 'Elegans' stretching above it. *I. stylosa* kept growing though and had to be moved to a larger sunhouse.

The big plants in mid-spring are *Arabis blepharophylla, Saxifraga burseriana* and *Primula marginata* sharing a crevice, *Cheirathus cheiri, Oxalis adenophylla,* and *Lithospermum diffusum.* The lithospermum sheds black leaves over the summer, however, and that period of unsightliness has led to its removal. I also had *Celsia acaulis* in there till I inadvisably moved it. I have not been able to locate a replacement and would like to very much.

Alstroemaria aurantiaca comes and goes and is splendid when it comes. New seedlings have developed into big plants bursting into green now, perhaps intending to bloom this year.

There is a nice lush growth of low plants for early summer: a trumpet-flowered low azalea; miniature roses maybe — their culture does not turn out to be that straight-forward; *Hebe carnosula,* a good, steady, white-flowered dwarf; *Campanula fragilis* or any of the low-growing ones, which bloom madly but are likely to fade; and as an attractive accent in leaf and flower, *Begonia sutherlandii.*

Mid-summer is marked by *Lagerstromia indica* 'Crapemyrtlettes', almost on a rock garden scale. More appropriately there is *Cyclamen purpurascens (europaeum)* and *Fuchsia magellanica* 'Tom Thumb'. Then *Cyclamen hederifolium (neapolitanum)* in all its glory replaces *C. purpurascens* and is joined by *Oxalis lobata,* a really charming plant. Some of the fall blooming crocuses might come through, *C. ochroleucus* being the most likely, and then my set of five will start to put in their appearance before December

is over.

There are others, and some good ones that are still too small to flower, but these have been my mainstays. I will gladly show off what I have and, with equal eagerness, hear of or see what others are doing.

The Rock Gardener

It is very early on a September morning. The sun is just coming over the horizon. It will be a fine day. A man is down on his knees making a small bed in a large garden. He is mixing various soils and ingredients in an effort to grow a difficult plant with which he has failed in the past. He is very intent and is as totally isolated as if he were alone in a boat. He is not in the least discouraged by past failures, in fact he is having a very pleasant time. His plants are at his side and his bed has been prepared with certain changes. He has had a long experience in growing wildflowers, with both successes and failures. He is a very happy rock gardener.

There are millions of men and women who enjoy working in their gardens when time allows, but they have many other interests and demands on their time. These are the well balanced people who form the major part of our gardening population. But rock gardeners seem to take on a different life style. They have the same interests and enjoy the same arts as other gardeners, but their over-riding interest is in the art of growing the wildflowers of the world. It becomes a kind of passion. They cannot imagine a way of life without it.

Rock gardening is considered by some as a specialized form of gardening and in a sense this is so, but, to quote from a recent Bulletin of the Alpine Garden Society, " . . . rock gardeners are the most widely educated and the most diversely interested of all gardeners. Their interest and knowledge range from the high alpines of the mountains to the plants of the woodlands, meadows and deserts of the world. As propagators, they are so far ahead of the average gardener as to be almost out of sight."

Rock gardeners go through many phases. Some take the high road and some the low: some become fascinated with the high alpines of the mountains and some with the plants of the woodlands and meadows. Most start growing the easier plants, but this phase is short-lived; they suddenly discover a whole new world of plants they never even knew existed and the next five years or so are spent searching far and wide for the rarest and most difficult plants they can find. Then, after fifteen or twenty years of glorious experience, the successful growers all end up the same way: growing the plants they like best and the ones that grow best for them.

The excitement of those early years can never be recaptured but its place is taken by a leisurely, happy time: tending the garden, seeing that their plants thrive, making changes here and there and introducing a new plant now and then. And the most wonderful part is that this phase goes on for a whole lifetime.

John P. Osborne
Westport, Connecticut

NOT ALL PLANTSMEN ARE MEN

F. OWEN PEARCE
Walnut Creek, California

Lester Rowntree

On the four hundredth anniversary of Sir Francis Drake's landing on the coast of California near San Francisco Bay, the Library of the University of California at Berkeley mounted an exhibition called *Nova Albion*, honoring British contributors to California history. Among the naturalists mentioned were Menzies, Nuttall, Jeffrey, Lobb, Douglas, Muir and Rowntree. Yes, the last name mentioned is that of Lester Rowntree, who died just a few days after her hundredth birthday in February 1979, and she is the subject of this, her story.

Queen Elizabeth sent Mrs. Rowntree (we will henceforth call her Lester) a cablegram congratulating her on her hundredth anniversary, and so did President and Mrs. Carter. These honors are convincing evidence of Mrs. Rowntree's place as a very distinguished woman of the horticultural world.

She was born Gertrude Ellen Lester to a Quaker family in Penrith, Cumberland. Cumberland is a part of the mystical lake country of northern England, and for a child who was fascinated with plants from the time when she could barely toddle, this area was unsurpassable.

Her mother's family were millers (they made good flour) and her father's family were tea merchants. Both of her parents were expert gardeners and they hired good gardeners to take care of their gardens in Penrith. Each of her five brothers and two sisters had garden plots of their own, and, at the age of two, she had one of her own — a wildflower garden.

Even in her early years she was a loner — in maturity she acknowledged being so. She rebelled against the envelopment of the nurses and governesses, who ruled the eight children in the nursery and walled garden of the family home. Even the walks through the wildflower fields of the Lake District were resented because of the restraint imposed by the nurses' policemen friends, warning, "Don't run! Put on your hat!"

To escape from this atmosphere, she would run away to join the gypsies where she could be in the flower-filled fields all the time. She would wait for them in a quarry, among foxgloves and other flowers, and eat the biscuits she had saved in a tin. But the quarry workers or someone else would always recognize her and bring her home.

When Lester was ten years old her father was beguiled by promises of a better world in Kansas, on a ranch. He bought some praire land sight unseen, and the whole family was moved to a non-existent paradise. The land was blighted and the water was poisonous. Typhoid fever and malaria were rampant and one brother and one sister died from these affictions. Her father gave the land away, with warnings of his experiences, and they moved to Altadena, California, where Lester first became acquainted with the wide perspective of the native California flora.

The parents were now concerned about school and religious training, so all the children were sent to the Quaker school in Westtown, Pennsylvania. Here Gertrude Ellen became Lester. She tells the story that from birth she had been called Pellet, and this is why: She was born on a Sunday morning when her brothers and sisters were attending Quaker meetings. When they came home and found an unaccounted-for baby lying upstairs, they ambushed the doctor and demanded that he tell them where it came from. The doctor was hard put to provide an explanation, but he rose to the occasion. "I was in Beacon Woods," he said, "and an owl spat out a pellet from a tree just in front of me. I picked up the pellet and out fell this baby!" So how could she be called otherwise than "Pellet?" Years later, after having adopted the name she had acquired at school, she carried on much correspondence with Willis Linn Jepson, Professor of Botany at the University of California in Berkeley. He was a great authority on the native plants of California. He had always assumed her to be a man, until she was introduced to him at a reception in Berkeley. Being in her work-a-day clothes (trousers) she had found it necessary to borrow a dress from a professor's wife to be presentable. Upon being introduced to her, Jepson became confused. He was woman-shy and avoided her at first, but soon the two were found in a corner, deep in conversation.

At the school in Westtown, Lester was given a patch of ground for a garden, to keep her from running away. For she still resented her lack of freedom from the restraints of the walls and rules of the school. Even then she and other classmates broke the rules by running off to the woods and fields, where she and another classmate would entertain the others with singing, running, whistling, and just being out-of-doors. They were punished for these infractions of the rules, but she said running away paid off by being alone and out — way out — in lovely country. And she enjoyed the flowers which she brought back and planted in her garden.

Vacations gave her further opportunities to collect and press specimens of both the eastern and California wild flowers, and she brought back, from California, specimens which she thought would adapt to eastern conditions.

Shortly after graduation from the Westtown school in 1902, she returned to Altadena to care for her terminally ill mother, who died four years later. She then went back to Pottstown, Pennsylvania, with her father, to take care of him and a schoolteacher brother. In 1908 she married an electrical engineer, Bernard Rowntree, who was a member of the Rowntree chocolate family in England. (Lester explains that Rowntree is a contraction of rowan tree, an ash.) She moved to her husband's home in New Jersey, where her father joined them, and here she built a new garden — a rock garden which became known as "The Rowans." Her thoughts went back to the wild flowers of California with a desperate desire to see them growing in her new place. She made several trips to the Pacific Coast, returning with collected seeds of plants, which she thought she could grow. Though many failed, she successfully grew others, and "The Rowans" brought fame to her as a plant expert and garden designer.

Upon the death of Lester's father in the 1920's the Rowntrees moved to Carmel Highlands in California, and when their only child, a son Cedric, reached college age she divorced her husband (in 1932). She refused to

receive any money from him and it became necessary for her to earn her own living.

Her past, vast experience with plants and gardens now became of great value to her. She had been collecting for botanic gardens, arboretums, and for individuals and she now started charging for seeds — at least ten cents per packet — and this started a professional collecting career which took her all over the country. She also experienced with seeds obtained from botanic gardens all over the world in exchange for seeds from California.

She bought an old car, altered it to provide space for a sleeping bag and collecting equipment and, "In 1940," she related, "I decided to get to the states I hadn't seen before. I talked my way by giving addresses at garden clubs and schools. I'd wake up on top of some mountain and remember I was broke, so I'd have to hike to town, change from gypsy garb to 'lady clothes', sleep in a stuffy room overnight, 'throw a talk', and then get back to my mountains — perhaps the balds of Kentucky or Tennessee."

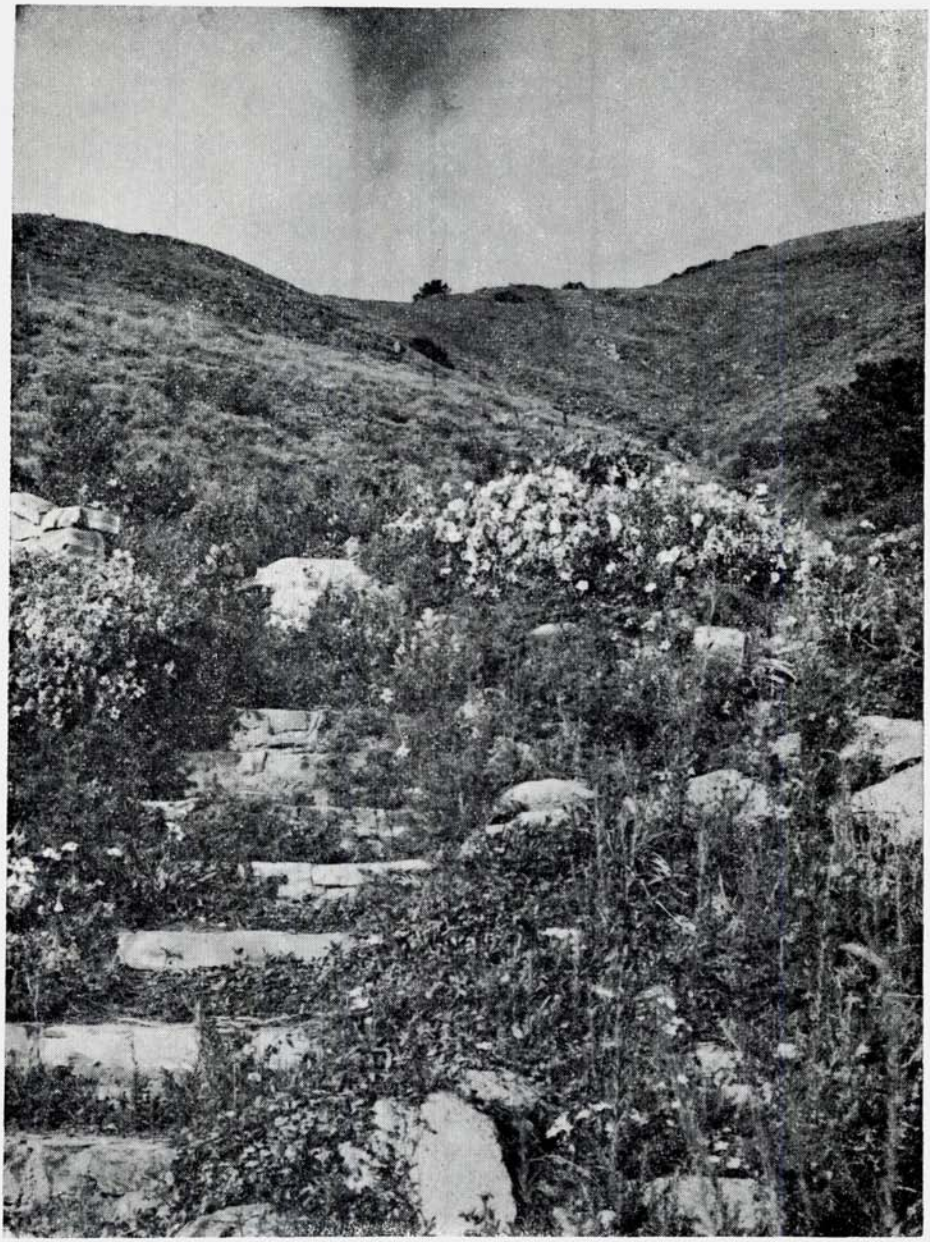
Her home on the Hill in Carmel Highlands was, from now on, the center of all activities, although for months during the spring and summer she would be on the trail, observing, taking notes, writing, collecting — and singing, for joy. But, though she wandered the country over — in the eastern forests, in the high Sierra, coast ranges and deserts of California — the Hill was headquarters. Here she grew her own garden, mostly of California native plants from collected seed, but also exchange plants, which were suitable for the Carmel climate, from all parts of the world.

She looked upon the Hill as the seat as well as the source of spiritual power. The Hill was to be revered and it was open to all members of the family as well as the broader community. However, if you came to the Hill you were expected to work. When her son and his family came down for spiritual regeneration, she had a five- or six-page list of *heavy* labor that had to be done. It was exhausting. Even past the age of eighty she kept up the garden and worked in it herself. How she, at that age, did it, was a marvel that those close to her could never understand.

Carmel Highlands is located high on hills rising abruptly from the rocky, picturesque coastline of the Pacific Ocean a few miles south of the town of Carmel. There are exhilarating, sunny days with lovely views of the ocean and the rugged cliffs, and there are many foggy days all of which contribute to the equable climate.

Lester loved to swim in the ocean below the Hill. She had learned to swim when she lived in southern California where there were long, wide sandy beaches. There were no such beaches here. Along this coast, occasional coves with small beaches were to be found, and there was one below the Hill to which it was a little too far to walk and a little too high to climb so she would drive her old car down to as near the water as she could and then walk to the shore and plunge in. Often there were sea otters who joined her in the water. "They were curious and would take a peek at me," said she, "and then they'd go down and think 'What was that thing in the water?' They're nice, forgiving things."

She took seaweed from the beach to build up compost. When she showed it to a ranger, he told her nothing could be taken from the beaches — not even a pebble or a shell. And



Lester Rowntree's rock garden on the Hill in Carmel Highlands

she never did again, although seaweed does make a very nice compost.

The garden on the Hill was never used as a source for seed for her collecting business. All seed sold through her business of Seed Collecting was taken in the wild on her many trips through the mountains, valleys, and deserts.

Her very most favored haunts were high in the Sierra Nevada at elevations from ten to twelve thousand feet and higher. She talked of "flowers coming out from under the snow — the buds were way back in. The bright snow above made it very light back in there. If you stayed there long enough and slept there, you'd see them develop. And you'd see all the little rosy finches — high up — picking insects off the snowdrifts." The alpine plants were her greatest love, and, of them all, *Eriogonum ovalifolium*, a cushion plant smothered with flowers when in bloom, was her favorite. Another favorite was *Polemonium eximium*, the Sky Pilot, a sky-blue-flowered treasure. Both were found only at very high altitudes.

She designed a rock garden at the Santa Maria Inn, gaining considerable recognition from it, and set herself up as a landscape architect. This business, together with the seed collecting and her writing, gained her more freedom financially.

She developed a great interest in writing. She wrote many articles for gardening and horticultural societies and she published two books which were immediate successes: *Hardy Californians* and *Flowering Shrubs of California*. Both of these books are now out of print, but negotiations are under way for the publication of a second edition of each one. She was well along in the writing of a third book, on the subject of rock gardens in California, but a tragic fire destroyed much of her house and most of her great numbers of notes on plant subjects, including most of the book manuscripts. This fire occurred when she was about eighty; she planned to rewrite the book, but this was a task she never got around to.

The first three or four chapters of the book somehow escaped the fire and are now safely filed. Rock gardeners should enjoy a few lines excerpted from these chapters: (It should be kept in mind that the book was written for gardeners living, generally, in the central California area.)

My first rock garden was built about thirty-five years ago (about 1912) in New Jersey. Though I followed all the books to the letter plenty of room was left for guesswork. The New Jersey garden gave me all I had hoped for and was a huge joy to many beside myself. And then I left again for the Pacific Coast. Between southern Oregon and the Mexican border rock gardening, as I had known it, seemed not to exist. Wetness, like many things in life, is comparative. A dry winter in the Pacific Northwest (Seattle area) is a wet one in the Pacific Southwest. In the Northwest, winter cold is welcomed, and wet is the arch enemy. In the Southwest sudden frost and periods of winter drought bring alarm. The rugged plant in the Northwest is the one that can stand being wet around the neck for weeks on end without succumbing to dry rot. Toughness in the Southwest means the ability to go from April to November with scant moisture. . . .

The need for rock garden beauty goes deeper than the convenience and structural necessity. There is something about plants growing happily in rocks (the best definition of a rock plant) that speaks of untrammeled freedom, of emancipation. No other form of gardening so stirs the emotions or satisfies the inner, as well as the outer, eye. In it there are unlimited opportunities for originality. No small garden is so definitely one's own as the little rock garden. It needs you as you need it. . . .

Take a tip from Nature. The best way to learn how to make a rock garden is to get out into the country and examine some of Nature's examples, choosing the ones which best fit the setting provided by the home ground.

These are most delightful paragraphs, and here is another similar one, not from the book:

"Once a well-planned rock garden is established and is on its own it becomes a burdenless plaything — a delight." I'm not sure this is true, for there are weeds — and runaway rock plants!

Lester also wrote a number of children's books, later than the two volumes on native plants — books such as *Denny and the Indian Magic*, *Little Turkey*

and *Ronnie and Don.* These have charmed a host of youngsters, including her own grandsons, Lester and Rowan, and her granddaughter, Patricia.

She has had an affinity for animals ever since she owned a Shetland pony as a child. "I remember," she said, "waking up in my sleeping-bag in the desert to find a cottontail sitting on the bottom of it and a quail nearby. The quail puffed itself up and began to strut around and the cottontail joined it. Soon there were more of each, taking part in a sort of dance. They know when it's Easter. There's some kinship between them in the spring. These are the things you find out by living among them."

Lester loved singing, particularly English folksongs. Hiking in the foothills, in the Sierra, in the desert, she would, in her exhuberance, break into song. I can imagine the folksongs, and possibly concert arias, that have echoed from granite cliffs and drifted over the desert.

During one trip on the desert, she sat on a stone to rest and began singing. A lizard crawled unnoticed up her leg onto her knee, where he had risen to a standing position, with his head cocked sideways, seeming to enjoy the song. Startled at seeing the lizard, she stopped singing. The lizard turned and started moving down her leg. She instantly started singing again, whereupon the lizard came back up onto her knee, cocked his head again and listened until she finished her song.

She was never happier than during the months when she was traveling in the great outdoors. "Up in the Sierra," she said, "after the flora and the fauna and the silva have accepted you, you climb to the top of a mountain peak in a thunderstorm, take off your clothes and dance in the rain. Soon you know that the elements have accepted you, too."

Lester has often been likened to John Muir in her interests and activities relative to environment and conservation. They both wrote critically and extensively on those subjects — each from his or her angle, of course. Of conservation she said, "At twelve, children are too old to become totally concerned." She was a leader in helping to save the Torrey Pines in San Diego County.

Muir, too, liked to challenge the elements. Staying indoors with friends one day during a storm, he became restless and went outside. When his hosts went out to look for him after an interval, they found him in the top of the tallest conifer, swaying back and forth in the treetop, in the teeth of the wind and rain, swinging his hat and yelling for joy.

Muir liked company with him on trails and around campfires, although he travelled alone often and far. In contrast, Lester was a loner from youth; she could get closer to her plant and animal friends when she was alone. She said, while talking of looking for plants, "If you don't want to walk, God help you — you'll never find them." When she knew there was no one about, she enjoyed collecting in the nude.

But she was also always a gardener. In *Hardy Californians* she writes:

> The plants must be approached not only from the botanical angle, but also from that of the gardener; their exposures, soil, possible requirements and their associates recorded; anything, in fact, which will facilitate the growing of them and make for a lower percentage of failures. On top of the Sierra you are in the Boreal, or Arctic-Alpine life zone, reaching from timber line to the mountain tops, which means, in this latitude, from 9,000 to 14,000 feet.
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> Here are precipitous slopes covered with loose granite, where at every step forward you seem to slip back a step. Along the smooth rock domes cracks of various widths run this

way and that; sometimes the entire dome is a network of cracks, from a tiny fissure to a crevice eight inches wide, the whole looking as rough as newly ploughed ground. Though from a distance these domes and slopes appear bare and stripped of all plant life, closer inspection shows alpines growing quite happily in both loose granite and tight crevice.

Sometimes the fracture is so slight that you wonder the seed could find lodgment, and yet the root will have penetrated the rock for a long way. Some creepers put out short fibrous roots from their running stems, but many alpines depend entirely upon their tap roots for moisture and their first response to the early summer growing impulse is to lengthen this tap root, or, if they employ auxiliaries, to wriggle another thread-like tentacle into the home crevice. These plants live in very intense light without strong heat, and seem to delight in it, in the iron they find in their granite abodes, in the extremes of temperature and in the mulch of gravel which is washed down from the slopes above, half covering the low tough stems and closely huddled leaves.

Until you see these alpines growing and thriving in pure granite, it is difficult to realize that to give them soil is to harm them. Even after I make a mental note of their requirements I am prone to feel, upon getting home, that they really should have some soil. Lately I have taken, while in the Sierra, to writing little messages to myself to be read when I get back to my own place, such as "PLEASE won't you give these plants pure gravel ONLY?" The offspring of transplanted plants can occasionally be brought to endure — and even to enjoy — some humus, but it is safer to start with unmixed gravel or sand.

With their feet searching the crevices for moisture, their scanty or reduced leaves often developing a thick protective epidermis, and their huge bright flowers crouching so low that they get all the benefit and none of the destructiveness of the wind, the alpines have all the necessities of existence at their immediate command and live a life of the utmost content.

When asked what did she get out of Quaker teachings, if anything, Lester Rowntree's answer was that she received a love of nature for the good of a place.

A slipped retina, probably occuring before she was eighty, resulted in poor eyesight. Because of this, Lester had to give up collecting seeds, but this gave her all the more time for her writing.

In 1970 Mrs. Rowntree received the

Lester Rowntree collecting in the desert at age 84.

American Rock Garden Society Award of Merit. The California Horticultural Society of San Francisco gives annually a coveted award to a person who has performed outstanding and meritorious service to horticulture in California. This award for 1973 was presented to Lester Rowntree.

Lester Rowntree has served as a model for numbers of women who strike out for themselves, saying, "Look, I want to do this and be independent."

Nancy Rowntree, wife of Lester's grandson, Rowan, has put it best: Lester as a role model is a strong presence, not primarily as a naturalist and writer, but as a woman who took her own life into her own hands when she was over fifty, and made a lot of it.

Credit for much of the information and many of the stories in this article

must be given to a number of sources. First, the oral history, produced and transcribed from taped interviews with Mrs. Rowntree, her descendents and many friends, by Rosemary Levenson for the Bancroft Library of the University of California, Berkeley. Second, from articles written about Mrs. Rowntree — one in *Fremontia*, a quarterly published by the California Native Plant Society, written by Skee Hamann; and three in *The California Horticultural Journal* and its successor, *Pacific Horticulture*, both produced by the Pacific Horticultural Foundation, the articles being written by John Woolfenden, Skee Hamann and Owen Pearce. Third, the excerpts from the first chapters of the mostly burned up, proposed rock garden book, were obtained from the files of the California Academy of Sciences of San Francisco.

SCHIZOPETALUM – A Beautiful Chilean Annual

OTTO ZOLLNER
Catholic University, Valparaiso, Chile
Drawing by the author

The flora of Chile is very rich in beautiful flowers. Some, such as Techophilaea, Calceolaria, Alstroemeria, Leucocoryne and others, are now being cultivated for horticultural purposes though there are many unknown to gardeners that deserve to be included in any garden. One of these is Schizopetalum, an endemic genus, a small herbaceous plant with beautiful white flowers. When they are flowering, the plants seem to be covered by snow flakes.

Schizopetalum belongs to the large family of Cruciferae. The most robust species of this genus is *Schizopetalum walkeri*, an annual with a height ranging from one to two feet. At the base it has three to four-inch long, radical leaves, their margins somewhat lobed. The stem, at the apex of which is the short raceme of flowers, has only a few small leaves. The four petals have a rather peculiar structure. Each of them is deeply incised with three to four pairs of lobes, just as if they were the work of an artist who had snipped the petals with his scissors. The fruits are typical of the Cruciferae: two to three inches long, narrow, bivalved and containing a large number of seeds.

The climate of central Chile (30° to 35° South Latitude) is very similar to that of southern California. It rains only during the winter months from May to August, the average annual rainfall not exceeding eight to twelve inches, which is sufficient for the native flora so that at the beginning of spring all the hills and slopes are covered with lovely multicoloured blossoms. With the beginning of summer all annual plants dry out rapidly; Schizopetalum, growing on sandy soils near the coast, is one of them. These flowering Cruciferae would be an ornament in any garden.

Schizopetalum walkeri

DWARF RHODODENDRONS FOR EASTERN ROCK GARDENS

Those who do their rock gardening on the Northwest Coast with its cool summers and comparatively moderate winter temperatures, are fortunate in being able to grow a wide selection of dwarf rhododendron species and hybrids to enhance their gardens. Most of us are not so fortunate. However, there are some members of this genus that will do for the rest of us, at least on the East Coast, and for their benefit we have two articles on the subject of dwarf rhododendrons and azaleas suited to eastern gardens. The third article which will be of interest to those in other sections of the country also, is on growing rhododendrons from seed.

James E. Cross, runs a large wholesale nursery, Environmentals, at Cutchogue on the northern fork of Long Island, New York where he grows magnificent forms of many shrubs suitable for the rock garden.

George W. Ring, well known in rhododendron circles, is a past president of the Potomac Valley Chapter of the American Rhododendron Society. He is a leader in growing and hybridizing rhododendrons and azaleas, and a contributor to the recently published *Hybrids and Hybridizers — Rhododendrons* and *Azaleas for Eastern North America*, reviewed in the Winter Issue of Volume 37 of this Bulletin.

Henry Fuller, a former Seed Exchange Director, has a beautiful rock garden and a considerable collection of rhododendrons and azaleas at his home in Easton, Conn. He is working at the present time on the native rhododendrons and azaleas of the Applachians, where he has collected natural hybrids and outstanding color forms, propagating these from cuttings and seed.

SOME DWARF RHODODENDRONS FOR THE NORTHEAST

JAMES E. CROSS
Cutchogue, New York

Those rhododendrons of smaller stature and finer texture, generally bunched together under the classification of the small-leaf dwarfs, have steadily come into greater availability to the point where there may soon be a plant to suit almost any desired purpose within and around your rock garden and the many dwarf species and hybrids are being tried and tested in an ever widening number of gardens. We currently have a good selection of named hybrids and the number of hybridizers actively striving for better garden subjects justifies considerable enthusiasm when contemplating the range of our choices in the future.

In considering the dwarf species for your garden, remember their origins. In general they derive from the higher

elevations where little or no overgrowth exists to protect them. They were brought up on bright sunlight and a short growing season of cool nights and relatively cool days. Perhaps most important, they get lots of moisture, low nutrition, and the best of drainage with little or nothing to retain free water around the roots. This environment cannot be duplicated in a low altitude garden, but they can be given sunlight from above with the cooling shadows of nearby trees and shrubs during the hottest part of the day. You can favor your dwarf rhododendrons by placing them in proximity to rocks to help ease the effect on both roots and tops of our overly hot midsummer days. You can avoid the use of garden fertilizers, relying instead upon organic matter added to the soil and a good mulch over the roots. You can and should give them the best possible drainage, but should have irrigation available; these dwarf species do not take to dry summers. Without supplementary irrigation they are likely to languish and slowly fade away.

You can also utilize the experience of other gardeners in your locality by planting first those of the dwarf species that you find in good health in your area. In the Boston, New York, Philadelphia coastal region, with its generally light, sandy, acid soil and humid summers, a number of the dwarf species do well.

One of the best of the real dwarfs is *Rhododendron fastigiatum* which, despite its name, is a low, spreading mound of fine foliage reaching perhaps one to two feet in ten to twelve years. The better forms have a zingy, rich bluish-purple flower heavily borne each spring. It should be hardy to -10° to -15°F. or lower if there is some dependable snow cover. Although *R. fastigiatum* is not quite as dense and not as good a foliage plant as its close and much more commonly available relative *R. impeditum*, its spring flowering reliability gives it a considerable edge. *R. impeditum* forms its new flower buds shortly after its late April to early May bloom and these are typically destroyed (presumably by the first hot spell); then a second set, perhaps one third in number, develops in a normal manner. In the eastern coastal climate about one half of these blossom in late summer, leaving a few good buds to make it through the winter for the following spring. *R. fastigiatum* does not have these proclivities.

Rhododendron fastigiatum can be grown from seed or cuttings, the latter method preferred for especially good forms. It is good to know that this species is best propagated with cuttings made of the softer last shoots of growth taken in early fall. These can be rooted more consistently than the shorter, harder, smaller leaved inside shoots, though these are generally favored as cutting material on harder-to-root rhododendrons.

Rhododendron intricatum is a good performer in this same coastal area. With a height of one and a half to two feet and of varying widths, it is most useful for height accent and for framing in the rock garden. The lavender-blue flowers are reliably borne in just the right quantity for this plant's open branching habit. It is not easily found in the nursery trade (possibly because of the unattractive winter appearance of the foliage), but can be rooted from soft or hard wood.

Rhododendron racemosum should be high on the list of candidates for the rock garden with its sprightly pink to white flowers, attractive red stems and firm small leaves. The plants vary a great deal in height, ranging from the low compact form emanating from the

Forrest expedition (Forrest 19404), ideally suited to the rock garden, to rather tall quite open plants with strong vigorous new growths, which need to be sheared regularly and severely after flowering to keep the shrub within bounds. They also vary considerably in flower color and the rather unsightly tendency to retain the seed capsule clusters into the next flowering season. Most forms of this species are difficult to root on hard wood so plants are frequently raised from seed. The more dwarf, compact forms usually provide seed that comes reasonably true to form and will produce blooming plants in about three years. This species and the one that follows appear to be quite adaptable to a variety of garden conditions.

Another species that varies greatly in form and which should at least be tried in every rock garden is *R. keiskei*, a delightful early blooming pale yellow. Most plants eventually reach considerable size, but who can deny the contribution made to the New York Botanical Garden's rock garden by an old plant that is at least seven to eight feet high and perhaps twice as wide. The flowers can open early enough to be caught by a still destructive frost, but avoiding the warmer south or southwest exposures will often retard the flowers just enough to miss these late cold snaps. For those who insist on a strictly alpine rock garden or those with decidely limited space, the very dwarf, compact (or nearly prostrate) forms will serve the purpose beautifully. 'Yaku Fairy', a clone of *R. keiskei procumbens*, does not appear quite as hardy as some of the other very dwarf, unnamed forms. At least one in particular stops growth and hardens off quite early. What it loses in not having the colorful new foliage of the larger forms, it makes up for with a deep wine, winter foliage color. At least some of the very dwarf forms can be reproduced from cuttings more readily than the more vigorous forms and from seed they come remarkably true.

Every rock gardener should also provide a spot for the charming, prostrate *R. nakaharai* with its hairy leaves and red flowers (in July on Long Island.) It is ideally suited to a planting of miniatures if the rabbit population is under control. It can be rooted with ease.

Two azalea candidates with (barely) persistent or semi-evergreen foliage are the very dwarf forms of *R. kiusianum*. The white flowering dwarf, with diminutive leaves on slightly tiered branches, is a gem to see and, once established, to maintain. Equally worthy is one of the forms which makes up into a low compact mound (like a miniature 'Gumpo') with jewels of flowers perched just on its outer surface. Both can be rooted on soft or hard wood but, when rooting the latter, better success will be obtained if the last, more lush shoots of growth are taken. Once this plant has begun to click into dormancy, success in rooting will be in approximate proportion to the number of leaves remaining naturally on the cutting.

No list of species candidates should exclude the justly popular *R. yakusimanum* with its coral buds and large white flowers and the year around attractiveness of its shiny, indumented leaves. This species has a particularly strong dislike for a hot, dry location — which is often the real cause for sickly looking plants rather than the winter damage, clonal difference, and such to which this is frequently attributed. It is great fun to raise these from seed but it is a slow process and a number of excellent selections

have been named and made available. There is considerable clonal variation in rooting ability. The really fine 'Exbury Form' will root but requires considerable patience; the larger leaved 'FCC Selfed' form roots much more easily. It is rather interesting that the former, harder-to-root clone does better with lower concentration of rooting hormones while the latter, easier-to-root clone does best with higher concentrations. 'Mist Maiden' does not make up into as nice a plant in this area as the other two, but it has the advantage in the relative ease with which roots will develop on a cutting.

There seems to be considerable controversy over the winter hardiness in the East of one of the smallest and very desirable purple flowered species, *R. radicans*. Perhaps this is due to the variations in plants raised from seed but there is also considerable evidence to indicate that in the eastern coastal region the problem stems from the heat and drought of summer rather than the cold of winter. Even though we here in the East may never achieve the enviably beautiful plants seen in the Pacific Northwest, careful placement to help ease the stress of our summers should provide us with a most enjoyable plant. Any hard or soft cutting, with a stem long enough to submerge in the rooting medium, will provide a new plant.

The same comments might well be applied to *R. keleticum* with its purple-crimson blossoms, but here there is even greater incentive to try everything because of the two magnificent forms: one a very compact mound and the other beautifully prostrate, in the large collection of old plants of *keleticum* in the Berry Garden in Portland, Oregon. These are available from one or more of the Washington and Oregon mail order nurseries.

From the ever growing list of hybrid small-leaf, dwarf rhododendrons we should be able to find, by trial, an ample number that thrive in our particular garden situation. Of the taller hybrids that reach up to nearly three feet or more in ten to twelve years, many have proven to be excellent garden subjects in the northeastern coastal region. Most are now well known but one or two characteristics might be worth repetition.

'Windbeam' is the only soft pink whose flowers improve with aging. It also has the advantage of being quite tolerant to city conditions. 'Dora Amateis', an excellent tight growing white, does best with overhead sun but midday and afternoon shade. It also needs space to spread out sideways and in such a site it will generally produce a plant that flowers freely and has a neat form right to the ground. Deep shade will work against the plant's form and too much sun and heat will most certainly bring in lace-wing fly.

'Mary Fleming' is best planted where the ever changing colors of the yellow and pink flowers can be seen daily during the blossoming season. This clone should be pruned hard and regularly after bloom if the distinctly upright form is to be retarded. 'Praecox' opens its rosy purple blooms very early, at the same time as *R. mucronulatum*, and in addition provides a most attractive foliage plant into late fall. 'Myrtifolium' is another very good foliage plant but is less hardy than its rating. It is one of the first to show damage from cold and sun and wind dessication. Its small pinky-white flowers are not showy but are better than those of 'Laetivirens' ('Wilsonii'), which has, however, particularly nice foliage. It does well on the north side of a structure or hedge, which cuts out the winter sun. Use great care in

providing the best of soil drainage for this plant or one year a wet summer will cause its unbelievably sudden demise.

'Pioneer' is a very floriferous and reliable plant but is being bettered by newer hybrids with evergreen foliage and sharper pink flowers equally heavily produced. 'PJM', a most reliable and broadly useful early blooming grex *(a group of plants with the same parentage-Ed.)*, is steadily being made even more useful by further hybridization to achieve a later blooming time, even more colorful winter foliage color, and greater variation in growth habit. Usually a rather strong magenta pink, better flower color and some near white forms of smaller stature than is usual in 'PJM' are available from the originator, Weston Nurseries in Massachusetts.

Of the even smaller hybrids, which have been available long enough to be tested in a variety of garden conditions in the Northeast, some have proven quite adaptable, while others, though with excellent ornamental qualities, demand too many of their parents' cultural requirements to make them easy garden subjects in this area.

'Pink Drift', although not widely tested, is showing real promise in performance. The magenta-pink flower does not contribute anything unusual in the way of color, but the quantity of blossoms on its compact form makes it quite a worthy rock garden shrub.

'Moerheim' is another distinct improvement on *R. impeditum* both in performance and, in some ways, in ornamental qualities. Its lilac-blue flowers are very densely produced. 'Lavendula' is a newer entry and is unique in its long lasting flowers, form, and colorful indumentum. It gives every indication of ease of culture and rock hardiness. Its larger leaves and their upward posture make it a candidate for a backdrop or for framing in the rock garden.

'Cutie', with pink blossoms shaded with lilac, provides a moderate ornamental contribution and is proving quite trouble free. If it becomes too lush from high fertility in the soil, the weak new growth of this plant can burn in the summer sun resulting in somewhat unsightly top foliage as it comes out of the winter.

'Coral Velvet' is a *R. yakusimanum* seedling with definite hybrid characteristics and a much more open and upright habit than the species. As in 'Mary Fleming', the flower color changes almost daily. More experience is needed, but, so far, it has performed well.

'Carmen', a charming plant with a very low habit and almost black-red flowers, deserves more use in the rock garden. This is another plant of *R. forestii* x *repens* parentage in which it is easy to confuse summer and winter damage. By some measures it appears hardier than its —5°F. rating. It clearly enjoys and responds to every measure taken to ease the summer heat, which otherwise considerably weakens the plant.

'Chikor', a Peter Cox hybrid with strong yellow flowers, is a gem in all respects and appreciably more hardy than originally thought. Unfortunately, it is quite susceptible to a very destructive branch disease (presumably *Phytophora cactorum*) in humid summers, the result of which is frequently attributed to winter damage. This can be readily controlled with midsummer applications of the fungicide, Manzate 22 (or Fore.) The same result can generally be achieved by using care in locating this cultivar where it receives good summer air circulation or, at least, by not tucking this little

fellow between larger neighboring plants. Reports of northeastern experience with a similar Cox hybrid, 'Curlew', are lacking.

Hobbie hybrids (various crosses made by D. Hobbie with *R. forrestii repens* as one parent) are all most attractive in foliage, in form, and in their distinctly red, hanging, waxy bell-flowers. Controversy rages on the East Coast as to their hardiness, particularly with respect tc the flower buds. They are, none-the-less, flourishing and flowering regularly in an increasingly larger number of gardens between New York City and Philadelphia. The best performer seems to be 'Baden Baden', which in ten years becomes a compact eighteen by eighteen inches. The cultivars with the most interesting habits for the rock gardener, being almost prostrate, are 'Scarlet Wonder' and 'Aksel Olsen'. These two, like 'Chikor', are subject to a branch disease incurred during the most humid part of the summer. With the inside branch structure closed over by foliage, good air circulation is not easy to achieve. To be safe, a thorough application of Manzate 200 about every two weeks in midsummer will keep these two clean.

'Veesprite', an *impeditum* x *racemosum* hybrid, with rose pink flowers, should do well in a diversity of rock gardens. Its flowers are more dependable, albeit quite different from those of its parent, *R. impeditum*. This is an excellent trough or bonzai subject.

All these hybrids root fairly well in summer from soft wood cuttings and all but 'Cutie', 'Myrtifolium', and 'Windbeam' do almost as well in fall using hard wood. If you have the room and time, you can have fun and gain some knowledge and, perhaps some very good plants by planting the seed which sooner or later appears on most of these hybrids.

SMALL RHODODENDRONS AND AZALEAS FOR THE MID-SOUTH

GEORGE W. RING
Fairfax, Virginia

In the *Rhododendron*, out of more than eight hundred species, there are about ninety that might be considered alpine type plants. The name "alpine" is confusing because rhododendrons of both large and small stature grow at alpine elevations, but I shall be using the word alpine to refer only to the small twiggy plants.

Natural settings for these rhododendrons are the high mountains, frequently above treeline. These areas have short growing seasons, winter snow cover, cool summers and perfect drainage. As you know, the Washington, D.C. area is not noted for these growing conditions and at best only a few of the alpine rhododendron species will grow satisfactorily here. From my own experience and that of several other rhododendron growers, there are only a few alpine-type rhododendrons suitable for this area.

One of these is *R. racemosum* a species native to elevations of 7,000 to 9,000 feet in western China. It is highly floriferous with delicate pink flowers. Different forms of this species vary in depth of blossom color, type of growth and hardiness. The most successful for this area has been a form selected by the late Joseph Gable in

Stewartstown, Pa. and is known as 'PI 59717' or 'Rock 11403'.

Another possible dwarf rhododendron for the Mid-south is *R. keiskei*, a yellow flowered species native to the islands of Japan. The best known forms are found in river valleys and do not qualify as alpines, eventually growing to eight feet tall. A recently discovered dwarf variety on the peaks of Yakushima grows to only a few inches tall and blooms later than the low-land type. This last is a decided advantage in the District of Columbia area. This Yakushima form, *R. keiskei procumbens* is almost prostrate, very hardy and most desirable for rock gardens. The Gable form is a more mounded plant, blooms early and is of a very good yellow.

The largest thing about *R. hippophaeoides*, a bluish-violet flowered rhododendron, is its name. Some forms are said to grow four feet tall, however a plant in Pennsylvania which is approximately twenty-five years old is about five feet across but only eighteen inches high. This species is reported to grow even in boggy places. At our place in Fairfax it does well in afternoon shade.

Rhododendron russatum, a small-leaved bluish flowered species is a true alpine. Though the original plant found in the wild grew to four feet, there are a number of forms that are lower growing. The 'Rock Form 5921' is a particularly good spreading shrub about thirty inches tall. It is usually listed by nurseries as *R. cantabile*. This species might do in the Washington, D.C. area but would need to be grown in some shade as it does not appreciate summer heat.

Rhododendron scintillans has almost needle-like foliage even smaller than that of *R. russatum* and its flowers are bluer. The 'F.C.C Form' has grown well for me for four years but has yet to bloom. This is probably because I have it in considerable shade to help it through the hottest weather in the summer. With improved drainage and an alpine soil mix it should take more sun and bloom easily.

Other alpine rhododendron species having potential for rock gardens in the District of Columbia area, according to S.E. Sanders of Bethesda, Maryland, are *R. fastigiatum*, with light purple flowers opening in May; rose-lilac blossomed *R. intricatum*, blooming in April; May flowering *R. keleticum* with purplish crimson blossoms; *R. radicans*, with purple flowers in May; *R. rupicola* that opens its plum-crimson blooms in April; and the March blossoming *R. flavidum* with pale yellow flowers. Mr. Sanders is growing all these species in about half shade in an alpine soil mix.

Aside from the alpine species, there are a number of other rhododendrons that have the slow, low-growing character desirable for rock gardens. Some of these are species while others are hybrids and most of them are adaptable to wider ranges in growing conditions than are the true alpines.

Among these are two sister seedlings of a Guy Nearing cross between the species *R. fastigiatum* and our native *R. carolinianum:* 'Purple Gem' and 'Ramapo'. They have similar purple flowers but 'Ramapo' is a more open growing plant. 'Moorheim Beauty' is an impeditum hybrid with lilac-blue flowers, and 'Mission Bells', a low mounded hybrid of *RR. williamsianum* and *orbiculare*, will take considerable sun and has pink bells which spill out of tightly massed roundish leaves. 'Cutie' is a delightful, lilac-pink flowered *R. calostrotum* hybrid with an upright habit, a much needed shape to contrast with the many low, mounded rock gar-

den plants.

The species, *R. anwhiense*, the lowest member of the Barbatum Series, is reported to eventually reach twelve feet, but this plant grows so slowly that it can be a good rock garden subject for many years. The flowers are white flushed with pink.

Rhododendron mucronulatum is normally a willowy, tall-growing shrub with lavender-violet flowers but a new form of this species, discovered on Cheju Island, Korea, has a low, many-branching habit with lavender-pink flowers. It has a very vigorous root system, grows easily from seed and will frequently produce flowers in just one year from sowing.

The low-growing form of *R. pseudochrysanthum*, native to Taiwan, is a particularly attractive foliage plant as its silvery leaves hug the ground. The blossoms are dark pink in bud opening to paler pink or white with deeper rose lines on the outside of the petals and spotting within. It does not flower, however, until fairly mature.

The 'Mt. Gusson Form' of *R. faurei*, a species native to Japan, has white to pink blossoms and is very dwarf, almost prostrate. Its bright green leaves are a good color contrast to most other rock garden rhododendrons.

Rhododendron hanceanum is a yellow flowered species in the Triflorum Series. The dwarf form, 'Nanum', has light yellow flowers and rarely grows over six inches high. It flowers later than the type and though marginally hardy in the Washington, D.C. area is well worth a little extra care.

Rhododendron yakusimanum is a low growing rhododendron species, which has gained great popularity in recent years because of its dense, slow growth habit and the beautiful fawn colored indumentum on the under side of the leaves. A naturally low, slow growing species it does vary somewhat in growth habit and has considerable variation in leaf size. The 'Exbury Form' and the 'F.C.C. Form' are particularly fine. The flowers are large in dense clusters, the buds deep rose opening to white or delicate pink. It is used extensively in hybridizing and is the parent of many maginificent plants. The foliage of this species looks best when given afternoon shade when grown at the more southern latitudes. *R.* 'Serendipity' is a hybrid of *yakusimanum* and *R. chrysanthum* with pale cream flowers and a very slow growth habit — about an inch a year. Although very scarce at present, I anticipate that it will become more plentiful as it becomes better known.

Some rhododendrons of intermediate size might be considered for accent plants in large rock gardens or in the surround. One of these is our native *R. carolinianum*. Although open growing in shade it is more compact in sun. A form of this species, 'Alba Compacta' selected by Joseph Gable in Pennsylvania, tends to branch more than the type and has most attractive pure white flowers. 'PJM' a hybrid of *carolinianum*, blooms very early and grows easily in the Washington, D.C. area. Its flowers tend to be on the magenta pink side but some forms of this cross have better flower color than others. The deep mahogany red of the winter foliage is one of its best attributes. Another *carolinianum* hybrid, 'Windbeam', grows well almost anywhere. It has dense, dark green, shining foliage and delicate pink flowers that open along with those of the early azaleas. 'Wyanokie', a sister seedling, has pure white flowers and is slower growing.

'Mary Flemming', a hybrid between *R. racemosum* and *R. keiskii*, has yellow and pink flowers. It eventually tends to grow upright but can easily be

kept in bounds with occasional pruning. It flowers early and is best with a dark green background.

One of the large leaved species that might be considered as a background plant is *R. degronianum*, a native of Japan. Though the type plant can reach six feet in height and as much as twenty feet across after many years, there are a number of low-growing forms, all excellent garden plants. *R. degronianum* has a plastered brownish-red indumentum on the undersides of its glossy, dark green leaves and flowers of a clear rose to occasionally white flushed with pale pink.

As a general rule, most species native to Japan are good growers in the eastern part of the United States and this brings us to another type of rhododendron that originated in Japan, the Satsuki or Fifth Month (June) Azaleas. Many of these low growing, large flowered azaleas bloom on into July and are apparently developed from the species *indicum* and *eriocarpum*. The Satsuki Azaleas tend to be quite evergreen and are dense and slow growing when planted in full sun. As with most azaleas in the Potomac Valley region, cultural problems are few and the grower is rewarded for minimal effort with superb flowers and a happy plant. Since the Satsukis tend to be long lived, some of them, though slow growing, can eventually grow to be a five foot tall mound, but they are easily kept within rock garden size by pruning. Most Satsukis tend to open their flowers bit by bit over an extended period thus making for a long blooming season. There are innumerable forms of this hybrid named by the Japanese. Blossom colors range from white through all shades of pink and red to purple and even orange-red. Flowers may be of a single color or may be splotched, striped, or blotched. In some clones there may even be flowers of different colors on the same plant. Japanese azalea specialists give these particularly high marks. The petals may be wavy or frilled; multi-petaled blossoms are not unusual. In some clones the flowers may be as much as four inches across with overlapping petals, while still other plants produce blooms with narrow petals giving them a starry effect. The Gumpo Azaleas are probably familiar to most gardeners but may not have been thought of as Satsukis. The pink form is reported by some to be less hardy than the 'White Gumpo' of which it is reputedly a sport.

It is difficult to believe that anyone could improve on the Satsuki Azaleas but Robert Gartrell, using mostly this hybrid crossed with hardier types, has produced a whole race of outstanding, low growing azaleas, which he calls the Robin Hill Hybrids. His selections are low, fine foliaged plants, mostly hardy to northern New Jersey with many partially double or fully double flowers. On the average, the flowers are larger than those of the Satsukis and the blooming times later, many of them beginning in July. Some of these are still identified only by number but many are named and are very fine.

'Nancy of Robin Hill', named for his wife is one of the very best. Other excellent clones are 'Watchet', with pink flushed flowers; 'Redmond', with huge orange-pink blooms; 'Lady Robin', a bright pastel pink; 'White Moon', whose very large white blossoms occasionally show a stripe of red; 'Rosanne', a luscious pink; and for those who like true deep reds, 'Maria Derby'.

The Back Acres Hybrids, developed by B.Y. Morrison after his retirement as Director of the U.S. Arboretum, have among them many fine clones

for the rock garden. Mr. Morrison's goal was to produce double flowers and flowers with white centers. 'Orange Flare' is one of the latter and another is 'Marion Lee', though when this plant is young many of the rich rose-red flowers do not exhibit white centers, which appear only after the plant matures. 'Debonaire', with a deep pink border and pale pink center, is one of my favorites, since I am partial to pastel blends and this Back Acre clone grows and blooms more dependably for me than some of the others.

Another clone, that is probably familiar to many of you, is 'Benikirishima', with orange-red double flowers appearing in June. It could require pruning after a few years in the rock garden, however. The well named 'Flame Creeper', has long been a favorite with rock gardeners, but a new hybrid, 'Wintergreen', made by Mrs. Julian Hill in New Jersey, using the species *nakaharai*, is much hardier and more floriferous. 'Chinsoy', a Gumpo hybrid made by Mrs. Hill has clear pink flowers.

Robert Pryor, at Beltsville, Md., has developed a lovely hybrid 'Oh-My', which is white with a pink shield. This does very well in the Washington, D.C. area. 'Hardy Gardenia' is a small, double, pure white azalea developed by Al Reid, who has worked patiently in Linwood for almost twenty years to develop florist quality azaleas that are hardy outdoors.

'Barbara Hille' is one of the slowest growing Gable azaleas and has single salmon pink flowers of a size appropriate to the stature of the plant.

Some of the results of azalea hybridizing at Beltsville turned out a race of genetic dwarfs. Almost lost for a time, a full set of the nineteen named varieties is now growing at Scientists Cliffs in Port Republic, Md. thanks to the efforts of the late Dr. Eugene Hollowell. Some of these azaleas have been re-released to nurserymen and are again available to rock gardeners. They tend to be covered with small flowers that are in good size relationship to the plant. Among these are 'White Nymph', 'Orchid Belle', which has its flowers in clusters of three, 'White Elf', and 'Pinkette', which has flowers of a bright medium pink in clusters of three to nine.

One species azalea, just now coming into prominence, is *R. kiusianum*, a small dense plant that has flowers ranging in color from pink to scarlet, lavender to purple and, rarely, white. It has been reported that Japanese nurserymen have selected and are propagating more than fifty varieties. This is a good grower in the Potomac Valley region.

DWARF RHODODENDRONS FROM SEED

HENRY FULLER
Easton, Connecticut

We hear more and more about rhododendrons in rock gardens, and our annual seed list offers us seed of many. If this seed is not wasted, if more members would grow from seed such rhododendron species as *RR. yakusimanum*, *racemosum*, *keiskei*, and *impeditum* (to name only four good ones for rock gardens) and use them imaginatively in quantity, the thought of the beauty that could be added to our gardens in a few years warms the heart. Rhododendrons make seed in abundance, and the seeds are generally

not difficult to germinate. Not only can we have these most beautiful of shrubs in our gardens, but we can have them in as great abundance as we desire.

There is, however, a problem. The conditions needed for the germination of rhododendron seeds are quite different from the conditions required by most alpine seeds, and I cannot recall any of the many fine articles in our literature on the growing of alpine and rock garden plants from seed which give any attention to the germination of rhododendrons. So, without a little attention to these special needs, some of our members, who are good gardeners skilled in growing alpines, could be disappointed unnecessarily and waste precious seed when they turn to rhododendrons. But this need not be so.

Surprisingly, though rhododendron and azalea plants grow best in cool conditions, their seeds need heat for germination, heat and high humidity, without any previous chilling. They can be sown as soon as you harvest or receive them in the fall or winter, without any chilling, and if conditions are right most species will germinate in two or three weeks. A simple medium of equal parts of peat moss and perlite is quite satisfactory. Milled sphagnum moss, without any admixture, is often recommended and the seeds germinate and grow well in it. I find, however, that the young seedlings can be pricked out of the peat moss and perlite mixture with greater ease and with less injury to the fragile roots, so I prefer it. The seeds should be sifted onto the surface of the medium and not covered. Do not cover with grit, sand or anything — no matter how successful you have found this practice with alpines. Do not water them in, except with a very fine and gentle mist, so as not to wash the seed down into the medium.

I generally use square plastic pots, capping each with a small polyethylene bag; a pot three and one half inches across the top will be fitted snugly by a normal sandwich bag. Sometimes I use small plastic flats, inserting each into a larger polyethylene bag held up by plastic pot labels. Thus simply can high humidity be preserved — and this is absolutely necessary; drying of the surface of the medium can be fatal, quickly, to the uncovered seed.

A little more trouble must be taken to preserve a constant gentle heat. Experts say 75°F. is perfect, but anywhere in the seventies will do, though they must not be baked and it is worth repeating that the surface must never dry. Perhaps others can find warm window sills, or warm closets, tops of furnaces not too hot or other natural spots in their houses, or somehow germinate their rhododendrons with their lewisias and gentians, but I have always failed in this. However, once I determined to make a simple propagating case especially for my rhododendron and azalea seed, this turned out to be very simple, and I have found the seed the easiest and surest and almost the quickest to germinate.

I have neither greenhouse nor alpine house, my basement is not warm, and I am a very poor carpenter and no electrician. But I am capable of finding or making a wooden box of a size to fit under a fluorescent light, which come in all sizes, in the basement. Even I am capable of coiling in the bottom of the box a small and inexpensive soil-heating cable, and of covering the cable with a few inches of moist peat moss and perlite. Stand pots or flats on the peat moss, cover the box with polyethylene, turn on the light, and

wait with confidence. It does not matter whether the fluorescent light is under or over the polyethylene. The seed will sprout so thickly that you will always wish you had planted less seed more thinly. At least I do; you may have more faith and self-control and plant fewer seed.

The seedlings can be pricked out as soon as they have two or three true leaves. They will need less heat, and no bottom heat, but if you start them as early as I like to you will need some light to keep them growing, but it need not be of high intensity. I use fluorescent bulbs. The alternative is to delay germination until spring, but then your seedlings will be very small when winter comes again, and it will take a year or more longer to grow them into blooming size plants. You can buy an inexpensive timer to turn off your lights six or eight hours every night, or turn them off when you go to bed and turn them on when you get up.

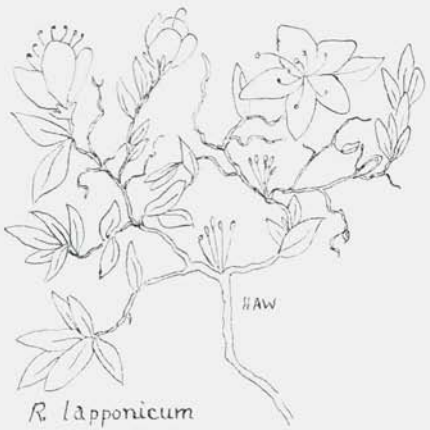
When thinking of rhododendrons and azaleas for rock gardens, it is natural to think first of the dwarfs and semi-dwarfs and small-leaved varieties. But all but the smallest of rock gardens need shrubs and trees of all sizes as backgrounds, dividers, wind-breaks, or companions. What shrub makes a better wind break than a hardy hugging-the-ground rhododendron? Or better suggests the mountains and high places, which rhododendrons clothe all over the northern hemisphere? If I lived in a hot desert, I have no doubt that I would try to make a rock garden of cacti, and find joy in it — but outside of the desert I find it difficult to think of a rock garden without rhododendrons and azaleas. And if, as I grow older, they tend to take over my rock garden, and my lawn too, I will not resist. I will just watch, and bless them, and give away my lawn mower.

ALASKA'S RHODODENDRONS

HELEN A. WHITE
Anchorage, Alaska
Drawings by the author

Alaska is blessed with two species of dwarf rhododendron, *R. lapponicum* and *R. camtschaticum*. The latter is further divided into two subspecies: *camtschaticum* and *glandulosum*. *R. lapponicum*, Lapland Rosebay, has the wider distribution and is thus comparatively better known. It is a boreal species which skips most of Europe except for Norway. It occurs in some abundance in Alaska, northeastern Siberia, northern Japan, Canada and Greenland.

Most often the Lapland Rosebay is a low shrub with gnarled and knotty branches resembling some b o ns a i



shrubs. It seems to prefer a meager, neutral soil, underlaid with rocks. Variety *parvifolium* does occur as an upright shrub attaining a height of about two feet. The lower version is the more attractive; a well developed specimen is a delight to discover. The foliage of both, however, is covered with resin dots giving it a scurfy appearance and is, therefore, less attractive than that of *R. camtschaticum*.

R. camtschaticum, the Kamchatka Rhododendron, subspecies *camtschaticum* is much more limited in range; occurring on the Alaska Peninsula, Kodiak Island and most of the Aleutian Islands. A couple of other isolated stations have been found in Alaksa so far. It also extends into north Japan. Subspecies *glandulosum* is even more restricted in its range. It is abundant on the Seward Peninsula. In fact, in some seasons it has been known to make the slopes of Anvil Mountain, near Nome, blaze with color. It ranges across the Bering Sea and to coastal northeastern Siberia.

Both subspecies of *R. camtschaticum* are deciduous and have larger flowers than *R. lapponicum*. The Kamchatka Rhododendron is a plant of alpine meadows and tundra.

Most authors rate the Alaskan rhododendrons as purple in color. I disagree. In my opinion they should be called rosy red. These rhododendrons are difficult to transplant successfully and it is my belief that they should be left undisturbed in their natural habitats in order to provide an ongoing population.

EUREKA !

DOROTHY METHENY
Seattle, Washington

The American Rock Garden Society has its well-established emblem, our beloved, twelve-godly Shooting Star. But should we not also select an appropriate motto?

Since I live in a part of the world where, the moment the winter's snow ploughs are berthed for their summer R and R, the elite among us head for the high places, what comes first to mind is "Excelsior!" While the less ambitious among us may remain content with, and the Alpine Garden Society may present first prizes to, our malodorous harbinger of spring, *Lysichitum americanum*, others soon yearn to explore the rarer air of higher places. We love to watch the phyllodoce and cassiope branches spring up as the melting snow releases them from the winter restraint. We are there to see the revulets trickling down from snowbanks and running over the feet of the lovely dodecatheon. We gaze across expanses

of snow where nothing more rewarding than an occasional thin patch of pink algae livens the scene. We are still there, gathering seeds, when the tide of summer warmth has turned and chill breezes again commence to sweep down the mountainsides.

Longfellow wrote:

"The shades of night were falling fast
As through an Alpine village passed
A youth, who bore, 'mid snow and ice,
A banner with the strange device
EXCELSIOR!"

However, come to think of it, perhaps that's not the right word for us, after all. Longfellow's youth, despite sound advice from all, grizzled elder to beauteous maiden, climbed insistently upward. And, alas, come morning, his frozen remains were discovered half buried in a snowdrift by someone's dutifully snooping St. Bernard. While it is true we have often been caught afield with daylight receding and our cameras hot from repeated firing, I think even the most intrepid among us would possibly not deem it advisable to continue trudging upward through the night in extended feverish hunt, by flashlight perhaps, for those elusive alpine darlings. So, let us abandon "Excelsior!"

A sounder, more appropriate motto might perhaps be, "Eureka!" Now here is a word usable by all of us, at whatever altitude we seek perfection of alpine plants. If we chance upon *Viola flettii* in a subalpine rock crevice; if we spot *Fritillaria pudica* glancing modestly downward on the sagebrush steppe; if we spy the enchanting *Calypso bulbosa* hiding in the shade of forest trees; "Eureka!", we exclaim. Here is a word which has the advantage of being usable as well for those who never get further afield than the gardens of their friends and fellow enthusiasts. "Eureka!", we can murmur, *sotto voce*, when we discover that mislabled plant, the woolly aphids lurking mischievously on the undersides of their tree branches, or the tent caterpillar nest flaunting itself on the unreachable tiptop of an indispensable branch. There are, naturally, some occasions when we had better just think, "Eureka!", to ourselves; for example in the case of the Creeping Jenny which will soon be out of hand if it isn't already, the frightfully clashing pink and orange azaleas, the poor little gentian hidden behind a thriving clump of *Campanula persicifolia*. About the intrusive common weeds, we needn't even *THINK*, "Eureka!" Things like these are what make garden visits so very rewarding, encouraging us to return to our own gardens, look about with whatever degree of satisfaction, and *GET TO WORK!*

Jasminum parkeri has been reputed short lived, but this may be a case of bad drainage. Mine is seven years old and occupies a two by three foot area. At the moment it is only nine inches high as the past two bad winters have cut it back — it will be close to eighteen inches high by fall. It regrows and blooms well in spite of the weather haircut. I have it on a raised terrace where it receives full exposure to the elements. —Shirley L. Klett, Bel Air, Maryland

HEUCHERA HALLII
In the Wild and the Garden

PANAYOTI PETER CALLAS
Boulder, Colorado

Heucheras are both a bane and a joy to the existence of the American rock gardener. To begin with, there's that ungainly name. No sooner does one settle on a serviceable rendition of the syllables than one discovers that the peculiar, aggravating sneeze in some garden visitor is just their personal interpretation of the word "Heuchera." One pleasantly circumvents this difficulty when it comes to the supreme garden plant of the genus, *Heuchera sanguinea:* Coralbells is apt and descriptive — but who has dared taste the roots of its more northerly cousins — the Alumroots? I generally avoid eating my alpines, but I confess that I've avoided tasting the heucheras lest they confirm their only common name.

For Alumroot seems to be the only colloquial name applied to the vast assemblage of glossy or hairy leaved heucheras that garland almost every cliff and outcrop from sea level to the loftiest summits of America's mountains. All share the habit of producing low, woody stems beset with a crown of decorative, toothed or scalloped oval leaves and a love of rocks that promises great things. Who hasn't been deluded into collecting a trunk of heuchera off season in the mad hope that something special will spring from the start next May?

Surely, no genus is easier to propagate from cuttings. In no time the trunk, crammed into some crevice of the rock garden, sprouts roots and new growth, and the next spring invariably summons a long, longer — much too long raceme of greenish, starry bells. The plants are downright spiteful in their indestructibility, one soon discovers.

In the meantime, on every outing it seems to you that there is somehow a special glint of green on some new cliff. After so many exhausting climbs (with tinkling rocks dislodged at every grunt) only to be greeted with another smug tuft of heuchera, your enthusiasm — even for the lovely foliage — begins to wane. You go home and their cousins are spitefully thriving on your very scree. Somehow, in the shuffle of years, these indestructible plants seem to disappear.

There are nonetheless times of the year when heucheras come into their own. After the vestiges of spring have left the lingering snowbanks and gentians are out in force and August feels like Eternity, the first hints of frost ignite the roadside cranesbills and color the canyon walls. The color of course is heuchera. The older foliage tinges russet, gold and pink while the fresher leaves remain bright green. You can hardly help but sit and admire this or that heuchera framed vista for a while. Heuchera, lichen and Douglas Fir are keynotes of our mountains, their endless permutations and clever blends. You suddenly notice the flowering stems are rather short on that clump, after all, and you begin to wonder if the

bell might not be a little larger than usual, or perhaps a creamier tint of green. Would it color up so nicely in the garden? Some people never learn.

I suppose that a new stage is reached when you find your first white-flowerd heuchera. For yes, among the tangle of dowdy, lanky, frustrating heucheras there do exist species that can charm in flower as well as in leaf. Of course, I have yet to see one that *really* fulfills the promise of the leaves: but show me a rock gardener who doesn't live on hope! I know of two white flowered species that I can vouch for personally, and I am piously assured by friends and Floras that more exist.

Heuchera hallii will undoubtedly remain my favorite. Years after I had foresworn the genus, once and for all, I made an early-season visit to Pike's Peak. In June, when the alpine meadows are pink with *Primula angustifolia* for miles, I kept noticing whitish candles in the gloom of cliffs in the lower montane levels of the drive from the car. What on earth could it be? I finally found a spot to pull off, and rushed up to the first cliff. It took at least a minute of examination to convince myself that I had actually stumbled on a pretty heuchera. Although *H. hallii* is almost entirely limited to Pike's Peak and the mountains in its vicinity, it has apparently been known to gardeners for some time. According to George Schenk's inimitable catalog (*The Wild Garden:* 1976-1977) Marcel LePiniec crossed it with *H. sanguinea* to produce a dwarf, rose-flowered hybrid, *H.* x 'Mayfair'.

I must confess right away that only a rock gardener would take a second look. The bells of *H. hallii* are small — barely half a centimeter in length — but are definitely bell shaped (with a fringe along the edges of the perianth). They are unimpeachably white, however. They are produced densely enough along the stem to make a discreet show.

In the garden, it usually blooms in May when one is less apt to notice such a delicate plant as at other seasons. If it isn't a showpiece, at least it is thoroughly reliable. No other heuchera has self-sown as liberally in the garden for me and it seems to have no foibles about soil, exposure or moisture. Any spot that's not baked or boggy is perfect for it — now and forever.

H. hallii is one of the smaller heucheras in leaf and stem. The leaves are rarely more than an inch across on slender pedicels. They are not scalloped, as in most of the genus, but sharply toothed around the edges. They are smooth and thinner than those of most heucheras, but soundly evergreen. Like most of its race it is a crevice plant in nature and will form long trunks and wide cushions in time. An established clump is actually quite showy in flower, since each crown produces several stems.

Although the seed produces mature plants in short order, it is easier to root cuttings at almost any time of the year. I suspect that it would be worthwhile, however, to grow a batch from seed to flower since I have noticed considerable variation in flower size and height of stem in wild plants that retain these characteristics in the garden. Some plants, for instance, never exceed six inches in height of stalk while others planted nearby will approach nine inches.

H. hallii is never more lovely than in the fall when the leaves take on burnished tints. Somehow you can enjoy the foliage more when you know that next spring it will produce a shower of genuinely white blossoms.

"DO AS I SAY—NOT AS I DO"
EIGHTEEN COMMANDMENTS FOR A ROCK GARDEN

G. K. FENDERSON
South Acworth, New Hampshire

1. The garden should remain as open and uncluttered as possible, with a minimum number of visual distractions. It is neither necessary nor desirable that all of it should be visible at once; rather, those areas which are visible should present a unified, well thought-out picture with balance, interest, perspective and, above all, restraint. A natural visual progression from one area of the garden to another should be apparent. Not every plant in the collection should be on display at once. An ideal garden would consist of a gradually unfolding series of plant tableaus, each constructed with the intent of providing an ideal cultural and aesthetic setting for its components.

2. Be bold with the initial layout of the garden. Make sure that paths are adequate for wheelbarrows, mowers, garden tractors, and p e d e s t r i a n s. Generosity in the size of the planting area to be developed will help eliminate crowding and clutter if your garden is small and will provide ease of access for maintenance.

3. Be bold with the use of rocks; use but few, use them strategically, and make sure they are large and significant enough to be in scale with the remainder of the planting. Make sure they appear settled and are of a color and texture not alien to the raw materials of the garden. If they are none of these things, do not use them.

4. Leave some uninterrupted vista, be it water, lawn, rough meadow, uncluttered woodland glade, or distant prospect, to rest the eye. Visual breathing space is important.

5. Be extremely critical, when planting gardens under or near trees, of which trees (and of which species) you retain. Removing natural visual clutter often can produce better design than any number of additions you might make. Trees to be eliminated should be selected well in advance of developing the rock garden. Strive to have your site appear as attractive as possible before any plantings are made. Remember, the site will become the permanent showcase for your collections.

6. Don't overplant. Allow space for plants to grow and develop uncrowded to their best advantage. Don't short-change yourself of future pleasure by opting for instant garden effect; such efforts are costly, extremely short-lived, and can mean much extra work and the loss of valuable plants within a short time.

7. Be bold with the use of accent plants, i.e. those with distinctive form, color or texture. But use them in extreme moderation; otherwise, that which makes them distinctive is lost in a clamor of many contrasts.

8. Choose for the backbone or focal points of your design only plants of known durability, hardiness, general good health and long season of interest. Leave for the background or less conspicuous areas plants of marginal hardiness, those that are prone to pests, those that have a shabby dormancy, and those of mere botanical interest, however rare.

9. Enliven the monotonous effect of collections of closely allied plants by including plants dramatically different in form and texture.

10. Give full consideration to heights, lengths, and general proportions of planting areas. For example, a stiffly rectangular raised bed, though perhaps easier to build, would be visually jarring in a garden where the majority of the lines were soft curves. So too would a very free-form simulated rock-outcropping in very formal surroundings.

11. Keep the use of man-made and non-indigenous materials (such as cement, brick, slate, railroad ties, newly-quarried or foreign stone, glass and plastic) to a minimum. Do not mix mediums unnecessarily. For example, if there is a need for a raised bed, try to incorporate it into an existing wall or structure. Build it with native stone whenever possible, rather than constrast the fieldstone of one bed with the bricks of another and the wooden ties of yet another.

12. Be conscious of surface texture and try to avoid too many varieties and discordant combinations. For example, a rock garden mulched with very light or highly colored stone in a woodland setting appears unnatural, however beneficial the topdressing may be to the plants being grown there. Likewise, a mulch of pine needles looks strikingly out of place in an open sunny area far removed from any pine trees. Use native mulches whenever they would be less distracting to the eye. They are usually cheaper, and more readily available.

13. Provide a generous cold frame and nursery area. Such an area, used for propagation and evaluation of plants before they earn a place in the landscape, will contribute greatly to the overall appearance and order of a garden.

14. Try to have a yearly housecleaning. Give excess plants away or discard them. Remain constantly conscious as to whether a specific plant is justified in terms of the space and time required for its care. Be critical of inferior clones; grow only the best. Try to avoid redundant collections. Don't allow your garden to resemble either a warehouse of plants or a hospital ward of perpetual invalids.

15. Try to rebuild and correct defects in old gardens before developing new areas.

16. Label only the most recent acquisitions and those of which you are uncertain. Labels are often an intrusion in the landscape, and their lack improves the memory. If you must collect, collect plants, not labels. Don't allow your garden to resemble a cemetery for mice.

17. Invite the A.R.G.S. frequently. This will improve your housekeeping.

18. Know when to leave well enough alone. Have the self-discipline not to intrude too much into the natural landscape.

A rock garden, like fine furniture, must be reupholstered from time to time. —Harold Epstein, Larchmont, N.Y.

Yearning For Meconopsis In the Northeast

VIRGINIA BRIGGS
Ithaca, New York

The woman who grew meconopsis
Was asked to give a synopsis
How can I, she cried, when all
of them died,
Do more than describe their
autopsies?
—Mrs. Clement S. Houghton

We who grow alpines usually think small, feel at home in Lilliput, and abhor the rank creations of modern horticultural science. Our special favorites creep and crawl and huddle together in mountain cracks and crevices for protection against the icy winds that blow above the tree lines of the world. Then how explain *Meconopsis betonicifolia* which, although a true alpine growing at elevations of up to 14,000 feet in the Himalayas of China and Tibet, nevertheless shoots up as high as five feet and, in cultivation at least, needs protection from wind? And how explain, on the part of one devoted to the infinitesimally small (*Draba imbricata, Bellium minutum, Hypericum pseudopetiolatum* var. *yakusimense* among others) a sudden and imperious longing to grow *Meconopsis betonicifolia*, "the great blue poppy of Tibet". Somehow that phrase echoed in the mind and it must have been that reverberation which led me one day to sow a packet of seed. There were no results. My appetite, of course, was whetted.

Clarence Elliott in *Rock Garden Plants* says that *Meconopsis betonicifolia* is "very easily raised from seed" but adds that it is "curiously temperamental about germination". He goes on to describe a batch of seed shared with two skilled gardeners, which came up for him "like cress and mustard" but failed to produce a single plant for the others. Elliott speculates that when a seed begins to germinate beneath the soil and is in a very tender state, a very brief period of neglect may allow the soil to become parched and the fragile sprout to shrivel. (This may explain many germination failures.) Elliott adds that "freshly gathered *Meconopsis* seed usually germinates fairly soon after sowing but if it has been kept for several months . . . it will take a long time to germinate, sometimes a year or more".

Freshly gathered seed of *Meconopsis betonicifolia* was obtained from a Czech correspondent and was planted as soon as received in October. The pots were kept in a cold storeroom at about 32° F. for three months, and brought out under lights in a cold bedroom (60° F.) in February. Marvelous! The seed germinated like cress and mustard. Now I would see the great blue poppy of Tibet.

But there were problems. Transplanted to pots of light, rich, well-drained compost and placed in a shady, cool coldframe, they began to disappear in disconcertingly rapid succession. Some dried up on a hot summer day when I forgot to water them, some rotted away in a spell of rainy weather, and the slugs took others. Apparently they require the conditions most dif-

ficult to provide simultaneously: unlimited moisture and perfect drainage. A search of ARGS Bulletins uncovered little successful experience in growing *Meconopsis* in the East. In 1962 Doretta Klaber found *M. cambrica* "gratifying, as all other *Meconopsis* I've tried have usually come up but departed this world after transplanting. I had a grand bunch of *M. Baileyi* this past spring which did just that". In 1964 Mrs. Hutmire of Takoma Park, Maryland asked if anyone in the East grew *M. integrifolia.* "I have tried to grow this plant three years in succession (from seed) but it always dies. Directions, please". That great grower of primulas, Alice Hills Baylor, responded that she had germinated seed of several *Meconopsis* in Vermont in the spring of 1956 which had produced lovely plants but no flowers. She kept transplanting them with no good results until 1960 when one plant in a bed rich in humus with an underground drain which supplied moisture finally produced those "exquisite blue flowers". Hers is the only record so far found of success in flowering *Meconopsis* in the East.

In my case, in spite of severe losses, a few *Meconopsis betonicifolia* seedlings survived: two or three single seedlings and one clump of several seedlings which I had not had the courage to disentangle in transplanting. These were left in the coldframe over the second winter. ("Coldframe" refers to a shallow frame in a protected place covered in winter, not with glass, but with oak leaves.)

It's probably no use trying *Meconopsis betonicifolia* in the Northeast unless you have, or can contrive, the perfect spot for it. A distillation of all available authorities indicates that the plant needs, ideally, shelter from wind on a gentle slope with perfect drainage, constant moisture in the growing season, semi-shade and rich, acid soil. Farrer, who consigns our plant to the genus *Cathcartia,* sends to us his recommendation for a gentian bed which he recommends for *Meconopsis* as well. The advice begins in Farrer's inimitable manner: "Let a bed be made of ample depth; let it be deep enough to bury despair so soundly that he can never rise up again . . ." That turns out to require a hole three feet deep, clinkerburrs, elaborate plumbing and canary-cage grocer's sand. I suspect clinkerburrs went out with coal-fired furnaces in this country and the plumbing and canary-cage grocer's sand were equally beyond my reach or imagination. Farrer's prose is immortal but his ingredients begin to date.

Clarence Elliott in *Rock Garden Plants* says "the plants like a rich soft loam, plenty of leaf mould and cow dung, and it likes half shade and shelter from wind. (Half shade in England translates to full shade in northeastern America.) He recommends it as an ideal plant for half-open woodland, or for open spaces between shrubs and in the background of the rock garden.

George Taylor, who wrote the definitive work on *Meconopsis (The Genus Meconopsis,* 1934, New Flora and Silva Ltd. 32 Old Bond Street) says open ordinary loam, if of good quality, is sufficient although, he adds, the plants are rich feeders and that many seen in gardens are starved. Well-rotted cow dung or an ample supply of leaf mould should be added. According to Taylor, drainage is of the utmost importance and the top two inches of soil must be as permeable as the depths. In England there is trouble with winter rot of the collar, the part between crown and root system, although in areas of winter cold and snow cover it should not be a problem.

Trying to keep all this expert advice in mind, I chose the spot where I hoped my blue poppy dream would come true — a gentle short slope facing east and partially shaded by a few shrubs and tall hickories and black walnut. There was surface water running across the foot of the slope in early spring which I figured might mean extra moisture down below in summer. Since my soil is heavy yellow clay, it obviously had to go. I dug it all out to a depth of two and a half feet and carted it away, filled the bottom of the hole with several largish stones and several pails of coarse gravel, added leaf mould and compost and peat moss (my mouth is watering) and granite chips and dried cow manure and bone meal, and aluminum sulphate to make sure the mix was acid. This was mixed and mixed again in the hole, fashioned back into a gentle slope and watered and watered. Then the hole was filled up again with more of the same ingredients. On a damp day in early May I planted in this ambrosial mixture my three single seedlings (after a year only about four inches high), and my little wad of four or five intertwined seedlings. The three singles promptly departed; the little wad flourished.

The seeds had been planted in the fall of 1973, germinated in early 1974, spent the summer and following winter in the cold frame and in early June of 1976 a flower opened. Was it worth it? I quote from a description in *Collins Guide to Border Plants: Meconopsis betonicifolia* is "the fabulously beautiful plant which all gardeners crave to grow. At their best the flowers are a delightful sky blue, two inches across, nearly round, lightly crimped on the perianth segments and with an iridescence which makes the bloom look mauve in some lights. It is in fact very like taffeta, the changing light affecting the shades. The boss of yellow stamens in the centre of the flower throws up this beautiful blue". Yes, mine was all of that and maybe even a little bigger and it lasted in full glory for at least five days. Friends and acquaintances were summoned to admire it and, for once, seemed impressed. A future flowering with big blue poppies stretched before me.

Two or three other flowers followed, one at a time, and lower down on the same stem, nice flowers but not quite so glorious as that magnificent first flower. I became a grower of *Meconopsis* on the basis of one flowering stalk.

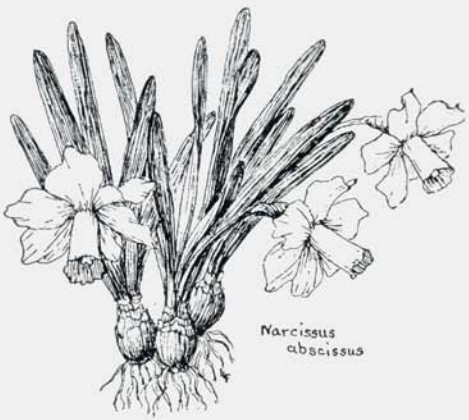
Is *Meconopsis betonicifolia* monocarpic or perennial? The question seems to have agitated the British horticultural press at one time. Clarence Elliott advised: "If you grow the plant rather poorly the first year, it will often develop a single rosette without any subsidiary side shoots. Such a plant, planted out, will almost certainly flower the following year, and, having no side-growths, it throws all its energy into the flowering and dies. If, on the other hand, you grow your plants very generously the first year, they will develop a number of smaller side growths, which, during the flowering of the central rosette will grow larger and themselves flower the year after." His *Meconopsis* had lived and flowered for four or five years and that constituted a perennial for him.

Mr. Taylor, the authority on the genus, offers advice which seems contrary but implies the same conclusions. He tells us that the quicker these plants are grown (growing generously a la Elliott?) the more monocarpic they will be. If there is no effort to flower the plant the second year, it will send out side shoots and then it may live

for years. Conclusion: flowering should be prevented the second year, much as you may be longing to see that celestial blue flower. In fact, since the plant may be dead by the third year, the temptation to flower it if possible in the second year becomes irresistible. My plant flowered the second year and lived to flower again the third year, but since what I call a "plant" was actually three or four seedlings to begin with, one may have bloomed and died and left another to bloom the following year. Last year, the fourth, my healthy clump did not flower but this spring (1979) it is up again, looking healthy, and as is usual in spring, hopeful. I now have two other plants that did not flower in their second year and now have two or three side shoots. I hope this year, not only for flowers, but for seed, which is more often set in a group of plants.

Unfortunately, again according to Mr. Taylor, the much-prized blue of *Meconopsis betonicifolia* is unstable. The tone varies according to the temperatures when the buds are coloring and the quality of light may also play a part. Taylor reminds us that the growing season in the Himalayas may be entirely sunless. The chemistry of the soil also has a direct bearing on color. Although the plant will tolerate some lime, acid soil is required for the best blue. The seed of a fine blue flower may not produce it in another garden.

To conclude with a question which perhaps should have come first: is the plant under discussion properly called *Meconopsis betonicifolia* or *Meconopsis baileyi?* I'm reminded of the old chestnut, is it Rhine or Rhone, I've heard both? Taylor tells us that *Meconopsis baileyi* is one of two geographical forms of the species *betonicifolia;* the two forms, if one chooses to recognize them, are *Meconopsis betonicifolia* forma *baileyi* and *Meconopsis betonicifolia* forma *franchetii*, the former being the one in cultivation. Taylor himself treated *Meconopsis baileyi* merely as a synonym of *Meconopsis betonicifolia* and *Hortus Third* follows him in this.



• • • *of Cabbages and Kings* • • •

"Now is the winter of our discontent . . ." Thus quoth Will Shakespeare and though the Bard of Avon may have left the actual weeding to Anne Hathaway (he had, after all plenty of other things to do, what with writing all those plays and sonnets and dancing attendance on Good Queen Bess), he was surely a gardener at heart. He certainly knew his plants, both wild and cultivated, and though he waxed lyrical on the joys of spring and summer, for the damp and cold blustery winds of winter he had very little good to say.

Yet winter has its compensations even for the most dedicated gardner. It gives one time to catch up on non-gardening activities, to cease the frenetic pace of weeding, watering, pruning, mowing, transplanting, repotting and dividing; it gives one time to plan.

If we lived in one of those salubrious climates where — according to the advertisements — it is spring year 'round, we would never catch up. Dust would felt the furniture and curl in windrows from beneath the beds; window panes would become impenetrably opaque, unanswered letters would topple in sliding piles from desk to tabletop; the floor of the barn would probably collapse under the weight of oddments accumulated against the day when there will be time to tidy up. If it were not for winter our family would probably disown us and our friends — those few who do not share our addiction — would undoubtedly desert us permanently for during the growing season we are so involved in our near-monomania that we socialize hardly at all and tend, moreover, to be rather dull as dinner partners. Soil mixtures, watering schedules, and fungus diseases are not exactly sparkling topics for general conversation.

Fortunate, therefore, are gardeners who make their home where weather closes down the gardening season for several months of the year. Consider, if you please, a garden in which weeds never cease to spring, where trees, shrubs, and vines grow exuberantly and insects proliferate unchecked from year's end to year's end. And consider the gardener in such a garden.

Thank Heaven for winter, when we can sit quietly and ease our aching knees and backs, with time to peruse seed lists, read, visit friends, write letters, and dream of yet more perfect gardens.

Open Gardens

One of our members suggests it would be very helpful to rock gardeners who are visiting from out of state if there were lists of good gardens, both private and public, in the area that they could visit, such lists to be annotated with addresses and, when necessary, phone numbers, so they could write ahead for permission to come and for directions for reaching the proper destination.

If Chapter chairmen would be willing to get up such lists of gardens in their area, keep them up to date, and have mimeographed copies ready to send out to inquiring members your editor would be happy to publish this fact in the Bulletin for the information of ARGS members who are planning a trip.

MINIATURE SHRUBS

by Royton Heath, 1978, Barrie & Jenkins, Ltd., London, England, £4.25 (approximately $9.)

Too many of us think of pieris and spirea as the only dwarf shrubs for the rock garden. Fortunately, there is this excellent book describing the abundance of good material that does exist.

Mr. Heath spends twenty-two pages on really dwarf conifers. He admits that "space does not allow for more than a selection of dwarf conifers." The other 135 pages are devoted to shrubs too often ignored by writers on plants for the rock garden. Many plant lists include aethionema, alyssum and iberis without noting that these are woody shrubs. You will discover, for instance, that *Anthylis montana rubra* is a sub-shrub.

I became a little lost when the author made the distinction between *Cytisus*, *Chamaecytisus* and *Genista*, *Chamaespartium* and *Echinospartium*. Few of us are botanists, just avid, knowledgeable rock gardeners, so are not aware of the small differences among these Leguminosae.

The Ericaceae are thoroughly discussed, including callunas, cassiopes, epigaeas, ericas and rhododendron, plus others such as leiophyllum, ledum and kalmiopsis. The pages on hebes are excellent. Too often I have come across names of hebes, but have had no resource to research the habits of particular species. Many penstemons are well described, making this reader wish the choicer varieties were more amenable to cultivation in Eastern rock gardens. Other genera are also well covered.

Some of the cultural information, such as the advice that deciduous shrubs are most easily moved from November through March, is obviously slanted to British climatic conditions and will have to be read accordingly by American gardeners.

The forty-eight black and white photographs, plus an equivalent number of small color photographs, all add to the information available in this book, which should be on the bookshelves of every rock gardener.

—Anita Kistler

A Garden Diary, carefully dated with year, month and day, is a useful and rewarding pleasure. —D. De V.

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Some of these holidays combine an interest in sites and flowers while others are for more serious alpine gardeners. All are with experts. Prices and names of tour leaders with itineraries will be available during November 1979 and will be sent on request.

SITES & FLOWERS ON CRETE—10 to 23 April

This tour embraces Crete's most interesting sites with the spring flowers of its south and eastern shores and mountains. Starting from Heraklion by special coach and visiting Knossos en route, we cross the island to Ayia Gallini where we stay and visit Ayia Triada and Phaestos, botanising as we go. From thence we drive to Ieropetra for further plant-hunting in the Dikti Mountains and Lassithi Plain; then north-east to Sitia from which the sites at Zacro and Paleocastron are visited; and finally back to Heraklion by way of Lato and the charming village of Kritsa. A feature is made of staying at small, un-tourist-ridden centres and often eating at wayside tavernas to sample country Greek food and wine.

AEGEAN TURKEY—17 to 30 April

The itinerary of this holiday begins with two days in Istanbul before continuing to Kusadasi, from which we make expeditions by coach to nearby sites, including Ephesus, Didyma, Priene and Miletus, all in lovely countryside where, in April, flowers grow in great profusion. From Kusadasi we drive inland to Pamukkale, with its series of heavily lime-laden springs and variety of flora, and then return to the coast at Izmir, from which Pergamum is visited, and where our last two days are spent. Both flower-lovers and those interested in history and archaeology will find a common interest and delight in the antiquities with their backcloth of unspoiled countryside.

BIELSA—THE SPANISH PYRENEES—29 May to 12 June

This charming little village which we featured with so much success in 1978, is to be used again in 1980 as a centre for plant-hunting. The Valle de Pineta, where it lies at 3,500 ft. rises to the foothills of Mount Perdido at 11,000 ft., and there are numerous and rewarding walks along and above. Many excursions can be made locally including the National Park of Ordesa.

IN ADDITION to these holidays we shall be arranging tours to two Swiss centres towards the end of June; country holidays in Italy from April to June and again from September to November with seven departures; and our usual treks in Kashmir, Nepal and Sikkim in the Himalayas with an emphasis on rhododendrons. We are, too, including Romania and Yugoslavia in our programme. **For all details apply to**

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