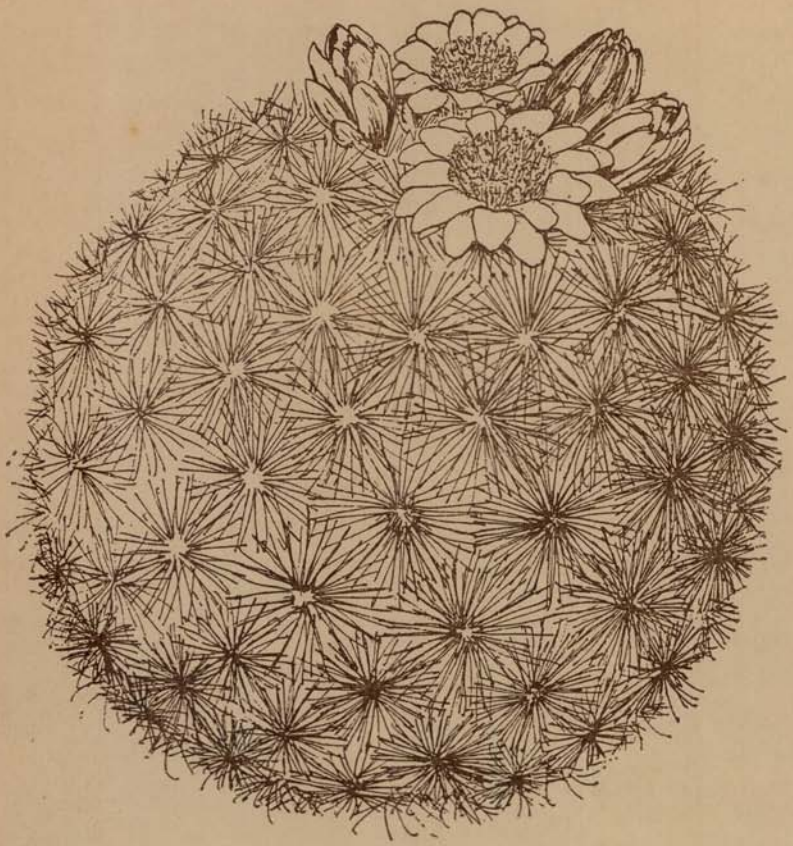

Bulletin of the American Rock Garden Society

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The Bulletin

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Front Cover Picture—*Pediocactus simpsonii*—Panayoti Callas, Boulder, Colorado

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Vol. 37 Fall 1979 No. 4

Bulletin of the American Rock Garden Society

Cacti: America's Foremost Rock Plants

Part I

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

Cacti are an integral part of the natural rock gardens of America; our individual rock gardens are necessarily poorer without them. This statement may strike the alpine gardening purist as unorthodox at best and heretical at worst, but we hope to demonstrate that it is neither, that it is, in fact, an obvious truth.

If cacti and our native monocotyledonous succulents are exotic in the eyes of Europeans, they are rather commonplace in this hemisphere. The family extends to practically every state and province of the Americas from the Southern Andes to the windswept prairies of Alberta and Saskatchewan. No family of plants in this hemisphere is more widespread or characteristic of a broad range of saxatile habitats than the cacti. Why saxatile? Because cacti are most at home among rocks. A few species are restricted to sandy habitats or grassy plains, but the overwhelming bulk of the family prefers to grow on well-drained rocky sites. One can travel through countless miles in the heartland of cactus country and scarely encounter a single one amid the endless flats of Creosote Bush, Mesquite and Saltbrush. But climb onto the first rocky ridge and dozens of species will suddenly make an appearance.

The Cactus Family is not without alpine developments. Especially in the Southern Hemisphere, there are dozens of cactaceous vegetable sheep — porcupines and hedgehogs in sheep's wool really — that haunt the highest screes of the Andes. Even in the United States there are a number of cacti that climb to the tops of the higher desert ranges. An intensely spiny form of *Opuntia erinacea*, for instance, hobnobs with the oldest Bristlecone Pines at 11,500 feet on the dolomitic summits of California's White Mountains. Dozens of other species are restricted to the high, dry, steppes, plateaus and foothills of Utah, Northern Arizona, New Mexico, Colorado and Oklahoma where sub-zero temperatures are a yearly phenomenon. Literally hundreds of distinct forms of cactus might yet be selected from among these, as well as from Chihuahuan, Sonoran and Majavean endemics that stray beyond their subtropical range into this or that chill desert valley.

Yet, in spite of their diversity of ranges and forms, in spite of a relative ease of cultivation, rock gardeners find themselves speaking furtively about this glorious family of American wildflowers. Evidently there is something *wrong* with cacti. It is difficult to comprehend what might be wrong with them as subjects for the rock garden. After all, is the body of the cactus plant that much more succulent than a sempervivum? Is its flower any more showy, say, than that of a lewisia? Its spines are only more painful in degree than the spines of a host of choice rock garden brooms, thistles and buns. Cacti are really no more unfriendly than these, or a goodly number of other accepted alpines. Indeed, they are a good deal more friendly than Aretian Androsaces, eritrichium and their ilk, that altogether shun our gardens with pathological obstinacy.

The ambiguity and condescension displayed by alpine gardeners towards cacti has resulted in an ironic twist: where in America is rock gardening practiced more extensively or with more striking effect than in the desert Southwest? Who can pass through El Paso, Tucson, Phoenix, Las Vegas, Los Angeles — even Santa Fe — and not be struck by the hundreds of naturalistic plantings featuring cacti artistically placed among rocks and a wealth of interesting desert wildflowers and shrubs that accompany them in the wild? Of course the dryness and subtropical climate in most of these cities precludes the use of many conventional rock plants in gardens there. But neither rocks nor gardens are limited to tundra. Neither, in fact, are the plants that most of us grow in our rock gardens. Cacti, too, it should be remembered, are by no means limited to the southwestern desert.

It is our contention that in spite of persistent prejudices, the ARGS is a natural body to foster interest in these plants and to serve as a repository for information about them. No other horicultural organization on this continent can boast larger numbers of talented gardeners who are skilled in dealing with difficult plant material. No other national horticultural organization in America has as its purpose the encouragement of naturalistic garden plantings employing wild plant material. No one is better suited than alpine gardeners for the ordeal of coaxing a hardy cactus from seed to maturity, and they can make a real contribution by selecting superior clones and compiling and disseminating information on the culture of hardy cacti in cold climate gardens.

The dryland rock garden is an ideal

setting for cactus plants. Here they can mingle with lewisias, manzanitas, penstemons and a welter of composites and bulbs just as they do in nature. The individual cactus is far more interesting when viewed in such a setting, among rocks and complementary, unrelated plants. Crowded too thickly with their own kind, a cactus planting may end up resembling a rock concert more than a rock garden. No sight in nature can impress a hiker more than the sudden apparition of a solitary mound of cactus in full bloom. If you can contrive this effect in the rock garden, you can probably charge admission.

While we readily admit that it is impossible to recreate entire deserts on a city lot, we do maintain (and we have proven) that it is possible to capture an essential part of the spirit of this fascinating natural complex. The balance of this article is a description of the plant material apt for such an undertaking. Perhaps in another context we might detail the procedures for creating an appropriate habitat for the plants.

Which species of cacti are hardy, and how can they be grown? If we limit our scope solely to the members of the family that grow north of the Mogollon Rim in Arizona, east of the Sierras as far as the Great Plains and colder stretches of the Chihuahuan desert, the numbers of species available to us is impressive. Cactus nomenclature rivals the taxonomic confusion of *Potentilla*, *Salix* and *Astragalus*. Species names especially are a bloody battlefield for botanists, now that a clearer conception of generic affinities has antiquated the clutter of micro-genera that once confounded amateurs. Botanists may fret about whether some entity is worthy of specific, merely varietal or just "form" status, but the horticulturist must necessarily apply a different yardstick to judge its worth. Without worrying too much about specific names, it is fairly easy to delineate the broad outlines of certain groups, or complexes, of cacti that can be used in the rock garden.

Size is an excellent criterion to use in dealing with the more interesting hardy cacti. As often happens in the Plant Kingdom, two altogether unrelated plants can resemble each other closely in the eyes of a novice while different forms of the same species may look vastly different. Since our art is more concerned with the habit of plants than with their genetic relationships, it is convenient to deal with cacti on the basis of their habit: we will begin with the "ball cacti" — comprising many, distantly related plants — then discuss the cylindric "hedgehogs" *(Echinocereus)*; concluding with the much maligned Prickly Pears *(Opuntia)*. Since nature is the supreme gardener, we will stress the natural settings where we have seen cacti growing. This can provide hints on how to grow them in the garden and underscore the message of this article: rock gardeners owe it to themselves to grow cactus.

The "Ball Cacti"

No better cactus can begin this account than the Mountain Ball Cactus, *Pediocactus simpsonii*. It is largely restricted to mountainous terrain at higher altitudes (in spite of its ridiculous generic name that means "Plain's Cactus") in almost every state west of the Great Plains. It is the most widespread example of a group of cacti that almost never descend below five thousand feet, in the south. They demand a rather mesic, temperate climate to grow at all. In the dry, intermountain ranges of the West, this cactus can

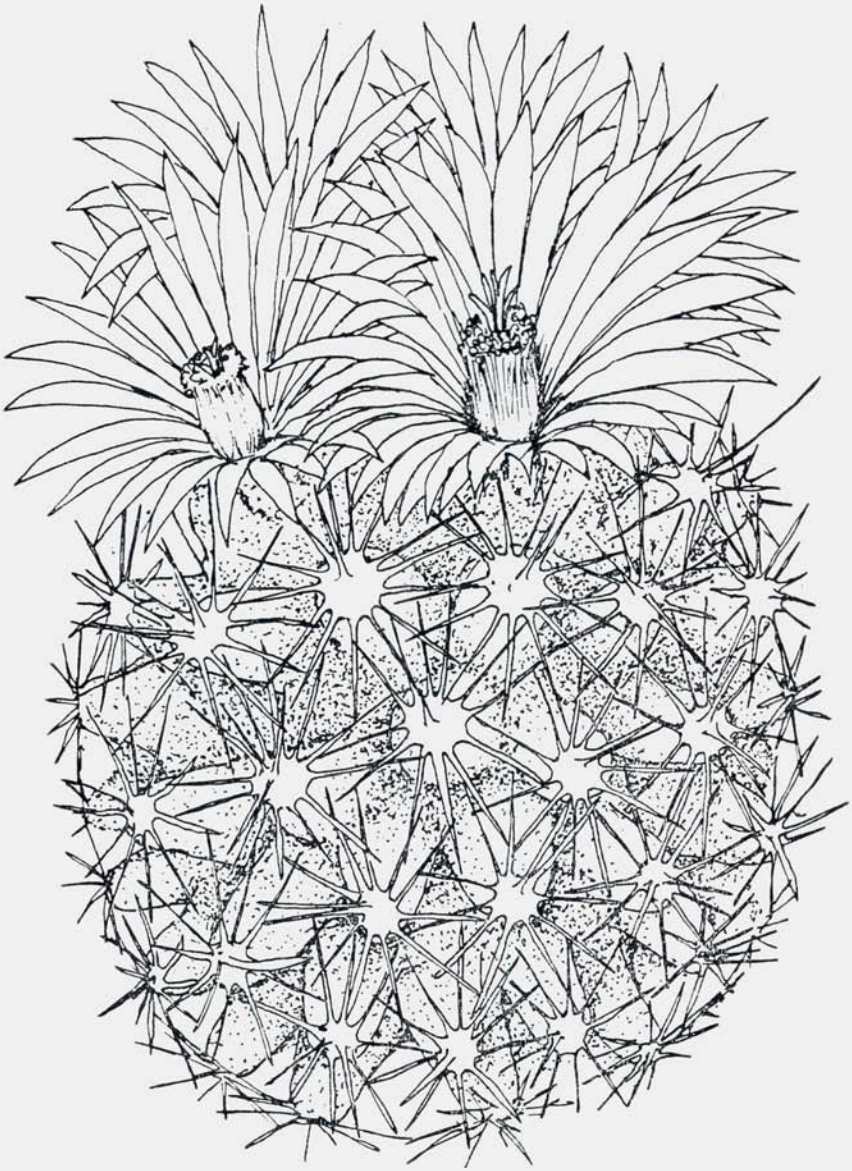
climb above 10,000 feet. While this paragraph was being composed a temperature of -52°F was recorded in a mountain valley west of Denver where *Pediocactus simpsonii* is especially abundant. Perhaps nowhere over its range does it grow as profusely as on the top of a nine-thousand foot high plateau in western Colorado where for miles on end the exposed sandstone bedrock between islands of Ponderosa Pine and Gambel's Oak is a veritable sea of *Pediocactus* tangled in dense swards of Ericopsis Penstemons, phlox in variety, bright purple *Allium acuminatum*, *Townsendia glabella* and selaginella. This species (as is so often the case with cacti) actually comprises a variable complex of forms. All are densely armed with centimeter long spines so that the body of the cactus is invisible. Most forms grow singly, others form clumps. The spiny spheres can grow from a mere three inches in diameter of the type variety into monsters eight or more inches across in other forms. The loveliest form is undoubtedly the "Snowball Cactus", a common variation in some localities, in which the normally amber spines are of purest white.

The flowers of the Mountain Ball are highly variable. The best forms have inch-wide chalices of rose which open widely and are fragrant. Cream, yellowish, flesh-colored and greenish tints predominate in the more westerly populations. This is the first hardy cactus to bloom in the garden, often opening its buds in March here in Boulder. Typically, it occurs among rocks and scant grass of the Ponderosa Pine belt of the Montane Zone. It will descend onto plains and valleys only in moister regions where alkalis have been leached. In one valley in southern Wyoming, granite outcrops are studded with *Pediocactus* at 8,000 feet elevation. In early June the steep, south-facing meadows between these outcrops are filled with dwarf sagebrush *(Artemisia tridentata)*, many buttercups, and *Thlaspi montanum* forming drifts of white interspersed with the brillant blue patches of the local representative of mertensia *(M. bakeri? M. viridis?* a *M. lanceolata* variety? Nothing keys out.) Bitterroots are just opening their first buds as the Mountain Ball finishes, while directly opposite, on the north-facing slope, the Lodgepole Pine forest is dotted with calypsos.

Pediocactus simpsonii var. *robustior* is the most distinctive race of the Mountain Ball. It forms giant, multi-headed clumps in restricted portions of the dry prairies in the Northern Great Basin. In this unusual race the spines are blackish in hue. The impact of a cluster of several six or seven-inch diameter heads is striking year around, even if the flowers are less brightly colored than those of its southern relatives.

A half-dozen more species of *Pediocactus* have been described from restricted ranges in the deserts of the Southern Great Basin and Navajoan Desert. This austere landscape has been so overgrazed and threatened by damming, electrical power plants and mining development that these impossibly rare cacti are in real danger of extinction. Most are adapted to extreme desert conditions or else occur in special habitats that are difficult to duplicate in gardens. Until these are available in seedling stock from responsible nurserymen, it would be criminal to advocate the use of these endangered plants in gardens.

Coryphantha vivipara is even more widespread and variable over most of the West than the *Pediocacti*. It extends further south than any *Pediocactus*. How such a beautiful wildflower, still



Coryphantha vivipara

growing abundantly over such a vast, populated area, can remain without a fitting common name is a mystery. Budding cactophiles sometimes confuse it with the Mountain Ball Cactus, but the two are really quite different in both shape and spination. Although the flowers in both are produced at the apex of the stem (Coryphantha, in fact, means "flowering at the apex"), those of the Coryphanthas are usually twice the size of the Mountain Ball's bloom,

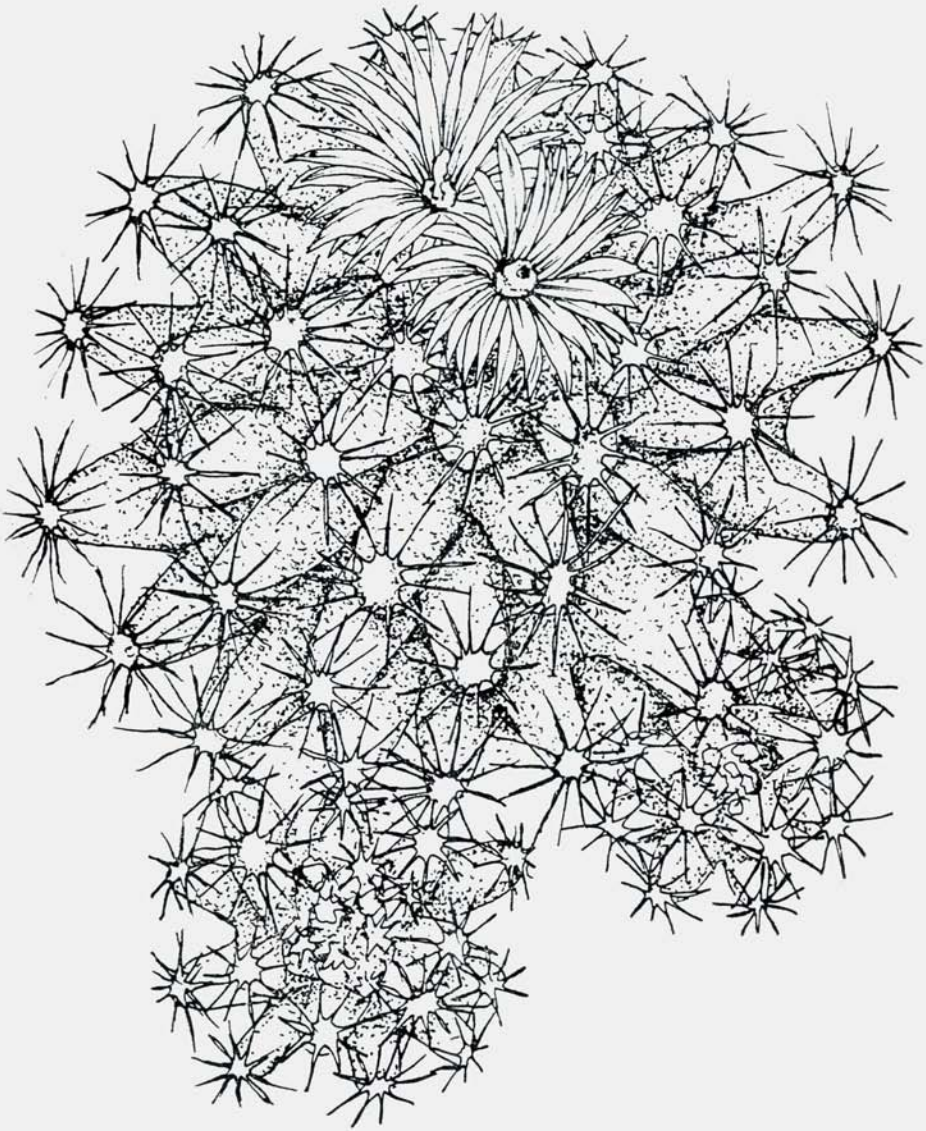
which they follow by as much as a month in the garden. Coryphanthas may have over thirty, narrow petal-like segments in each flower, while in *Pediocactus* the segments are blunt, much shorter and fewer in number. The flowers in the former are generally much brighter, varying from pink to virulent magentas and vibrant purples. Although they are produced on low plants, often half-hidden in dense stands of Buffalo Grass, they can nonetheless make quite a show in nature. Coryphanthas generally prefer more alkaline conditions of open prairie at lower elevations but can climb well over 6,000 feet even in the northern reaches of their range. They often bloom after the first rush of spring flowers, joining in with a spectacular canvas of eriogonums, *Calochortus nuttallii, Lithospermum incisum, Sphaeralcea coccinea* and the ubiquitous rabble of castillejas, astragalus and oxytropis of the West. Cattle have effectively trampled countless millions of these plants out of existence in the last century. In pastureland they can often be found only under fence wires, growing in pitiful rows not of their own choosing.

The variation in the complex is almost ridiculous. The name has been used to lump varieties with incredibly dense, interlocking white spines (var. *neomexicanus)* that occur in the southern portion of its range; single barrel-like plants that can attain nine inches in height in the upper Mojave with pale pink flowers and variably-colored spines (varieties *deserti* and *rosea)*; and of course the thickly caespitose plants (responsible for the name "vivipara") that produce dozens of offsets — resembling *Sempervivum arachnoideum* from a distance — that abound in the high parks and on the Great Plains.

These forms and others all intergrade, so that the accurate determination of varieties is difficult. Growing any of these from seed is a slow and tricky process, as the seed germinates unevenly and matures at rates to satisfy the most patient alpine gardeners. Unlike *Pediocactus*, which sheds its seeds from dry capsules promptly after ripening, Coryphanthas produce a juicy, sour fruit that ripens late in the summer and usually persists through the winter on the plant. As a result, it is easy to collect.

Occuring over much the same range as the eastern varieties of *Coryphantha vivipara* is a similar ball cactus, *Neobesseya missouriensis*. This little mammillary is more prominently tubercled than even Coryphantha and has sometimes been called the "Nipple Cactus" because of this. It, too, prefers the Buffalo Grass prairie to mountainous terrain, but it is easily distinguished from Coryphanthas growing nearby because of its flattened rather than coneshape body and the bright red fruits that persist even longer than the greenish or russet capsules of *Coryphantha*. The brownish or straw-yellow blossoms, with a darker central stripe on each narrow segment, are of course quite different — easily distinguishing the plants when they are in bloom. Fabulously rare pink-flowered colonies have also been reported in Montana and Oklahoma, but we have never seen them. The Nipple Cactus rarely grows in such dense stands as one often encounters with the other Ball Cacti. One can easily overlook a plant in full bloom, and if one finds a small colony it is usually because one notices the bright red fruits contrasting with the deep green body of a plant buried in a clump of grass.

The plants are small, usually only three inches across. Patriarchs six-inches across can be found where grow-



Neobesseya missouriensis

ing conditions are optimal. It offsets sparingly in its northern forms, which also tend to be smaller. The southern forms of this cactus have sometimes been segregated under the name of *Neobesseya similis*. This robust development occurs from Oklahoma southward and appears to be almost as hardy in cultivation as the northern form. The flowers are produced in an amazing profusion over a much longer period in the early summer than in the northern

variety. It offsets more readily as well, and is unquestionably a superior garden plant. *(To be continued)*

The authors would like to acknowledge the inspiration that laid the groundwork for this article: above all to Sam and Maryann Heacock of Denver, whose generosity both with cuttings and information encouraged us to pursue the study of cacti. Without having seen the immense variety of cacti in the Heacock's wonderful garden, we would never have believed that such a wealth existed in the family for colder climates. Prof. Taylor derived much information from visits to Claude Barr's "Prairie Gem Nursery" where so many fine cacti have been propagated and distributed for many years. Mr. Callas would like to express his gratitude for the many opportunities he has enjoyed to visit out of the way corners in the West with Prof. Emeritus T. Paul Maslin, whose knowledge of the plants and backroads of the West is surpassed only by his talent for growing them. His rock garden hovers behind several descriptions in the article. We also express our gratitude to Horst Kuenzler of Belen, New Mexico, whose consumate skill at propagating cacti may one day save some of the rarer ones from further decimation, if not extinction.

Aphidicide

An orchid raising relative has told us of his success in ridding his plants of aphids and scale: he simply cuts pieces an inch or two long from a pet's flea-collar (cat or dog) and lays one or two on top of the soil around the neck of the plant. Presto — no more pests! And no messy, stinking insecticides either. The only precaution as I see it, in childless households, may be to lift the pieces from the pots when watering. (Families with small children will doubtless have to take appropriate steps to keep inquiring small fingers at a safe distance as with any other insecticidal materials.)

I learned of this ploy only recently and have applied it to some cyclamen seedlings under lights with immediate and gratifying results. It may still be too early to estimate the effects on new hatchlings, but I have hopes. The remedy — if, in fact, it proves to be one — also seems to work on scale infested ferns.

The flea collar is, I believe, not without its critics; but if it works with our ferns and cyclamen over an effective two to three month span before the pieces may need renewal under house conditions, I see no reason to suppose it might not be similarly effective in coldframe, pit house, etc. To date it sure beats spraying.

— Milton S. Mulloy
Waterbury, Connecticut

Al Fresco in Petropolis

People who live in cities do not live there because they dislike nature. The flight to and from cities has little to do with horticulture. But most city-dwellers, deprived of a natural landscape, probably have an even greater need for gardens than those who live in the suburbs or the country.

Much of the beauty of our cities is the direct result of a universal longing for a green and picturesque environment. The aesthetic contribution of landscape architecture to the urban scene equals or exceeds that of structural architecture. Alfred Geiffert, Jr., the landscape architect, said, "As beautiful as Charleston is architecturally, stripped of her gardens she would lose much of her charm."

Fortunately, the city-dweller can enjoy nature even if he does not live in Edens like Charleston or Carmel. The beautiful parks of our concrete-and-steeliest metropoli are proof of that. And for those who lack a neighborhood park, or who desire greater privacy than parks permit, there is always the challenge of making one's own oasis, one's own Paradise, for appreciation, contemplation, release and fulfillment.

An enormous literature, including an infinity of magazine articles and many, many books, is devoted exclusively to the urban garden. Many of the books, and a few of the articles, deal with some aspects of urban rock gardening, in anywhere from a sentence to a few pages. However, they yield little detailed information; the comments on rock gardens are, as a rule, brief and generalized. The articles that follow do not, of course, present a systematic treatment. However, they do depict the efforts of city rock gardeners to achieve what we are all trying to do. The adjustments they have made to city conditions may be interesting or instructive to those who are similarly situated. Two of the authors have even engineered a scree, with running water, indicating a willingness to go to what the average city gardener might consider desperate efforts in order to achieve beauty. As many rock gardeners know, and as these particular ones testify, the rewards of such labor are great indeed. — Ass't Ed.

ALPINE NEWPORT NEWS

NORMAN T. BEAL
Newport News, Virginia

Norman Beal is a horticulturist working for the Virginia Polytechnic Institute Extension Service in Newport News, which has a population of 130 thousand. In his small, townhouse garden near the center of the city, he has grown or is growing most of the plants mentioned.

In the country a rock garden is often "lost" or, at least, of secondary interest among the oaks, beeches, pines and vast lawns of a fifty acre residence. But in the city center, where building lots are small, it is easier and better to display and enjoy up close the multitudes of small treasures available to

us. Certain small, slow-growing or dwarf plants will thrive in every section of the nation.

In southern Virginia, transplanted northerners often bemoan their inability to grow lilacs, rhododendrons, yews and other familiar landscape plants. How lucky their visiting kinsmen consider them when they see growing quite haphazardly the incomparable Crepe Myrtle, Southern Yew, Live Oak, camellia and gardenia. Likewise transplanted northern rock gardeners bemoan the death of imported saxifrages and heathers during our muggy summers instead of facing reality and selecting from the wealth of readily available, hardy native and introduced dwarf plants. With these they can construct rock gardens that will be superb, even though different from those found in Connecticut. The red winter mat of *Vaccinium vitis-idaea minor* is not for us; instead we have the equally brilliant buns of *Nandina domestica* 'Nana Purpurea Dwarf', starting their fiery glow as early as September. Saxifrages, no; sempervivums and some echevarias, yes. Many regionally overlapping plants tie our gardens to those of our Northern confreres, notably the dwarf conifers, the maples and innumerable small creeping and blooming mats.

The city rock garden should be enclosed by a fence or wall upon which can be grown non-invasive flowering vines. Clematis, Cross Vine *(Bignonia capreolata)*, and Trumpet Honeysuckle *(Lonicera sempervirens)* are good local choices. A southern boundary fence will give a northern exposure for plants preferring it. If the soil is not well-drained, it should be made so with a goodly proportion of humus and coarse sand mixed in. Ground-level rock gardens require back-breaking work, are monotonous to look at and harder to see. Raised beds or mounds alleviate these problems. Rocks are not indispensable to rock gardening, but are greatly to be preferred; but not your average rock-hound's collection of one from every state and all colors of the rainbow. Decide upon one type and color of rock and stick with it. It will not only unify the garden, but appear to have been there all along. To those who object that it is unnatural to place rocks in an area where none appear naturally, I reply: Balderdash. It makes as much sense to apply that logic to houses, in which case we would all be living in trees and caves. However, each to his own taste.

My preference is for the pale gray, water-rounded limestone rock that abounds in the mountains of Virginia. Landowners in that area are often delighted to give away as many rocks as possible, and I, for one, am always ready to oblige. Rocks may be graded into sizes that can be comfortably moved by various assemblages of men, thus 1-man, 2-man, and 3-man rocks. Those small enough to be carried by children and most women are too small to make an impact and should be thrown back. When collecting, be picky. Rocks all the same size and shape will look like peas scattered upon a field. Of course, we can enhance the apparent size of one by placing it high upon a mound of soil so that more of it appears to be hidden than actually exists. Don't hesitate to place a nice rock into a finished garden at a later date. After deciding where it belongs, carefully dig out the soil, insert the rock, turn it until it presents its best aspect, then fill in around it, tamping the soil firmly. It will immediately look as if it had been there forever.

Sometimes a steeply sloping mound will present problems of soil erosion. I've found that a mulch of shredded

hardwood bark *(stone-chips are less likely to harbor slugs, fungus/disease spores, and insects — Ed.)*, besides being most attractive, will be proof against the heaviest downpour, although not against the digging of squirrels and racoons, as indeed nothing is. Everyone knows there are more of them in the city than the country, so we just have to re-firm the soil after them.

The small maples look exceedingly at home in an alpine garden, and if you don't wish them to attain their normal height of up to twenty feet, they can easily be maintained at a lesser size by judicious application of the secateurs. Most would agree that the natural-looking small gardens of Japan would not look that way at all without the unnatural help of the shears. This is also an excellent way to care for bonsai and use them to augment the rock garden. Place them randomly among your rocks and keep the tops pruned as you would normally during the growing season. The trunks will develop much faster than in a pot, and watering and other chores will be much simplified. Of course you can root prune periodically as needed, and pot them up when desired for special occasions or effects. One of my most dramatic "trees" is an old privet, eighteen inches tall, with a trunk as thick as your upper arm. Like all privets, it requires a lot of pruning and would not meet a purist's qualifications, yet it arrests the eye. Another is a collected Scrub Pine *(Pinus virginiana)*, with a twisting, sinuous trunk and layered mounds of foliage. Too oriental? So be it.

Most dwarf conifers thrive in this area (excepting the true firs). The best are the dwarf Hinoki Cypresses, which never seem to be bothered by any pests. Most others do not long survive the predations of spider mites unassisted. Forceful hosing down with water knocks them off, and the little critters are so small it takes them the longest time to crawl back on.

In the South we are fortunate to have a rich variety of dwarf broadleaf evergreens to choose from. The peer of this group is Henry Hohman's selection of *Buxus microphylla compacta*, which he named 'Kingsville'. It wants to plod comfortably along at a half-inch annual growth rate. Those of you who like to run with the hare for a while can speed it up to eight times normal with periodic applications of liquid fertilizer (I use Peters 9-45-17) *after* hot weather arrives to stay, discontinuing them by late September. Frequent drenching with water helps during this time. Don't let its slow growth rate discourage you from starting cuttings. True, a one-inch cutting will take some years to appear in the field of vision; however, if you can gain access to large plants, take large cuttings. My best results were obtained by taking them during the Twelve Days of Christmas, growing them in darkness for one to two weeks, then sticking them under mist where roots magically proliferated within three weeks. Success was in the range of 99 percent, whereas similar cuttings in a Wardian case rooted much more slowly and in the range of 25 percent. *Nandina* 'Harbor Dwarf' makes nice little groves as it proliferates from rhizomes. Mine bloomed and fruited this past year, and the normal size berries looked ridiculously fat and pompous, perched on their six-inch hosts. Satsuki Azaleas (the Japanese pronounce it "Satski") are great for small spaces. Naturally low and spreading, they can be greatly assisted by annual shearing near blooming time. As most flower buds are well down inside the foliage, there will be ample, indeed overwhelming, bloom

after shearing. Shape them to match their nearby companion rocks.

Several dwarf Japanese Hollies *(Ilex crenata)* are of interest. Two relatively new forms look and feel as if carved from stone. The male is 'Green Dragon', the female 'Dwarf Pagoda', the latter more compact, both growing less than four inches a year. The *I.c.* 'Helleri' selection called 'Witch's Broom' has been a disappointment, growing more vigorously and upright for me than its parent. The yellow foliaged form of *I.c.* 'Helleri' provides a nice touch of winter color for those who like yellow, although I prefer the dwarf gold Thread-leaf Cypress for pure gold.

Pittosporum 'Wheeler's Dwarf' makes a shining mound of bright green in shade. *Abelia* 'Edward Goucher', while dwarf, needs periodic shearing to maintain compactness. One of the best plants for shade is Sweet Box *(Sarcococca)*, and its winter bloom is pleasantly fragrant. *Pieris japonica* 'Pygmaea' is delightfully miniature in all aspects; *P.j.* 'Bisbee's Dwarf', with reduced leaves, has a healthy pink winter color; *P.j.* 'Wada' is slower growing and more compact than the species. has pink blooms and pink winter leaves.

Osmanthus heterophyllus 'Rotundifolius' with one-inch rounded leaves, and the even dwarfer *O. delavayi* with holly-like leaves are both collectables. *O. heterphyllus* 'Variegatus' has crisp white-margined foliage.

Euonymus fortunei 'Minima' ('Kewensis') is a common landscape shrub, appearing box-like with tiny leaves. It is most suitable for the rock garden. *Rosmarinus officinalis* 'Lockwood de Forest' is a charming, twisted dwarf evergreen shrub, peppered in fall and winter with stars of bright blue.

Serissa foetida (Popcorn Plant), usually considered a houseplant, makes a stout-stemmed treelet in local gardens. The double-flowering form is more compact than the species and is evergreen in normal winters. The tiny-leaved Hokkaido Elm, an *Ulmus parvifolia* selection, is almost evergreen, shedding its mantle for a brief period in late winter. With a growth rate similar to that of Kingville Box, it makes a billowing, mounded little shrub.

A rock garden in the city? Yes! it's a natural.

ALPINE NEW YORK CITY

DR. ALAN NATHANS
Bronx, New York

Dr. Nathans is a retired biology and physiography teacher of circa forty years. Currently he is a dedicated alpine gardener and an inveterate traveler seeking why a plant grows where it grows — especially saxicole flora.

My active interest in rock gardens began in July 1972 while I was on a tour of the European continent. At a rest stop near a peak in Switzerland I saw an alpine version of our native bull thistle explosively thrusting a double floral head through the snow. Almost simultaneously it was enveloped by a swarm of tiny insects from out of nowhere, a flower-to-fruit cycle erupting in a few minutes (or seemingly so)!

This display of dynamism had a pro-

found influence on me. My determination to pursue the mysteries of alpine horticulture dates from that moment.

But I have a thirty-two-foot by eighty-foot back yard in a brick and concrete northeastern city at sea level. There is a temperature distribution of 47°F. in the spring, 63° in the fall, 75° in the summer and 40° in the winter, with a year-round average of 54.5°. We rarely reach down to 20° in the winter; a bit more often, but still rarely, we go up to the 90's. New York City has a year-round rainfall of 40.19 inches, with snow and frost amounting to 29.6 inches. There is more than enough daylight with twelve hours in the spring and fall, fifteen hours in the summer, and a weak ten in the winter. Wind offers little concern to the backyard garden, so surrounded is it by buildings.

How then to grow alpines and rock garden plants at sea level under such climate conditions? To answer this question, I have spent six years in study, built six different versions of a free-standing rock garden (raised bed), and travelled to eight European countries. I have tested the nature of soil mix and mass, the form, height and position of the raised bed, planting depth and positioning, nutritional additives, the watering cycle and winter protection needs. I am still testing, but the current version (about six feet wide, twenty feet long, and about two feet high) has provided some answers to basic questions. Questions relating to watering, nutrition, grooming and winter protection are discussed in the following paragraphs. A list of plants tested completes these notes.

Watering

All other factors are secondary to the question of watering and drainage. The very physical structure and construction of the raised bed is totally predicated on the manipulation of water.

The site selected for the raised bed should be either on a slight crest or on a gradient permitting constant water movement, not in a depressed area. I first dig out the area to about eighteen inches below ground level, and fill this excavation with a bottom layer of three inches of pea stone (bluestone, etc), pounded down, and the spaces filled with course sand. Above this I place rock rubble in a vertical stance, and again fill with pea stone and sand. Then, above this I scatter crushed unglazed red building bricks that act as slow release aquifers. At all levels, sand is filled in and watered down before the next stratification.

A three-inch layer of sand to act as a filter is then positioned. This layer will also be an inducement to rapid drainage. Above this sand layer goes the planting medium. This consists of a mix of two parts (two heaping shovelfuls) of sand and grit, one part of rotted leaf mold, one part of medium loam, eight ounces of dolomitic lime, four ounces of superphosphate, three flat shovelfuls of course charcoal and two shovelfuls of finely chipped (1/4") bluestone.

This soil combination, well mixed, is layered in as one builds up the vertical walls of the raised bed, using sedimentary flat rocks. The rock wall has a split bonding (each rock covering the crack between the two below it). Each stratum is carefully kept tilted inward and down by firm insertions of bits of rock chips between the rocks (for lateral water flow and air movement, and to insert wall plants). This creates a funnel effect. There is no cementing of any rock.

Counter to the common practice of a slight inward plumb from the base,

the plumb is kept true from top to bottom. It was found that such a struture avoids the erosive effects of cascading water, permits the wall plants to be freely pendulous, and encourages air movement around them. It looks more natural and is pleasing.

The plants themselves are designed to catch water. As a result of eons of Darwinian evolution, alpine plants have developed survival characteristics. These include tightly overlapping rosette leaf patterns, slight or no internodal separations, a wrinkled exterior, succulence, hairy protective coverings, etc. In the main, these devices conserve or catch water in droplet or mist form.

Watering of alpines in nature results from the passage of low clouds, condensation that occurs when mists reach critical night-time dew points, the slow release of snow melt, and drenching summer squalls. In the rock garden these natural actions can be approximated by heavy mid-morning and mid-afternoon mistings, as well as by heavy waterings (with mist attachments) to soak interior aquifers when required. These watering practices are dependent on the weather, especially the presence of the sun. Watering should never be done by the calendar, but should depend on need. The watering program should continue until frost sets in. The soil mass of the raised bed must always have a reservoir of water available.

An automatic misting system might be hidden in the raised bed. This has not been tried.

Nutrition

Initially, ideal growth conditions were provided by fertilizers. The svelte, tight mounds and compact rosettes began rampant vegetative growth, with long internodal spaces and few (if any) flowers. The saxifrages became loose and sprawling. They no longer resembled those delightful little plants one sees in the mountains peeking out of snow or rocky places, where the alpine ecology (a reduced level of nutrients, lower temperatures, and a shorter growing season) permit little more than survival.

Thus, to emulate these spartan conditions, over-feeding was abandoned and the regular rich nitrogenous diet was replaced by small amounts of a slow release organic fertilizer. Offerings of nitrogenous food became fewer and were limited to early spring and late fall. A light, late-fall dolomitic-lime dusting and a light sprinkling of bone meal or superphosphate and potash in spring supplemented the nitrogen feedings.

A raised bed should be positioned where plant or animal organic detritus cannot fall onto the soil, as these would undesirably increase the nitrogen intake. It should be out in the open, with no tree overhang, particularly not deciduous trees. Open placement assures the raised bed of constant sun, all but the north-facing areas receiving a creditable amount of sunlight. Open placement also provides free air movement around the growing area.

Grooming

Rock gardens appear to require less grooming than annual, perennial or vegetable gardens.

A key technique is the use of a fine rock mulch. Quarter-inch sieved, clean rock chips or gravel placed about a half-inch thick over the bed cuts down on surface evaporation and reduces capillarity from the interior. It also minimizes the compacting action of rain, watering, and wind movement, and keeps roots cool. It reduces the need for weeding almost to zero. A

thicker mulch, about an inch, is carefully tucked under the cushion, rosette and mat-forming plants. This reduces the potential for contamination by bacterial, viral or fungus organisms, and keeps the plants drier. The rock mulch provides a convectional air flow to keep the rock garden plants dry and warm, diminishes soil-splashing onto leaves and lets the plants look their prettiest.

Why not pine needles, or other organic mulches? These add extra nitrogen and increase the chances for infection.

In lieu of washed bluestone chipping one might use small cinders, or crushed, finely sieved slate. Black crushed slate seems to provide more convectional air movement around the plants.

The vertical rock walls of the raised bed require grooming, i.e. the soil inserted in the crevices does need occasional replacement. Sod is set aside, inverted, and kept apart from the compost heap. Suitably sized plugs of sod are pressed firmly into the crevices. Their fibrous nature acts with a sponge effect, gives body, and can provide newly-imbedded plants with a firm anchorage, and also protection for their roots. When the plug breaks down it will supply a bit of decomposed nitrogen. Rock ferns, campanulas, sedums, saxifrages and other plants are happy with such moorings.

To compensate for loss of sand as it sinks into the soil mass, leaf mold should be mixed with an equal volume of sand when it is replenished.

Pruning to maintain compactness, removal of dying flower heads and dead leaves are recommended as part of the grooming process.

Winter Protection

The main thing is to achieve the winter protection that the plants are accustomed to in their native habitats. In true alpine condititions, plants survive happily in the only slightly subfreezing temperatures that prevail under snow cover. The winter climate in New York City, where there is little or no snow cover, certainly differs. In the city occasional warm spells in winter leave plants unprotected and directly exposed to fluctuating temperatures going far below freezing, even down to zero. Winter rains, occasionally heavy, also have a disastrous effect by eroding the soil as well as the snow cover. These devastatingly violent fluctuations are partly the result of the fact that New York City's winter weather sometimes comes from Canada and sometimes from the Gulf of Mexico.

Furthermore, that very characteristic morphological structure of alpines, the tap root, delving deep between the rocks, must continue to be winter-functional at all times. It must draw water from the normally slow but steadily trickling snow melt above to maintain turgidity, and to prepare for that explosive spring need of nutrients, enzymes, and phytohormones for the rapid flower-to-fruit survival cycle of spring and summer. If there is no snow cover, the tap root may dry out from lack of moisture. Dryness can result either from actual drying out of the soil or from freezing of the soil to depths below tap-root level: the tap-roots simply cannot "tap" the moisture, because it is frozen. Winter-long snow cover would prevent such deep subsurface freezing.

The so-called winter rest is actually coupled with growth dynamics, and a slow vernalization, increasing in late winter, is necessary to complete the cyclic demands of survival. Without winter mulching and protective effort, such dynamics would be nonexistent.

Prior to using any of the winter mulching techniques there should be

a pruning back and grooming of any rampant, straggly or dead growth. The cushions, mounds and rosettes need to be tightened up.

Winter weather brings many special problems, e.g. soil and plant heaving (resulting from fluctuating temperatures above and below freezing point), sunburn of exposed plants, increased surface evaporation of water from exposed soil, erosion and compaction by rains, destruction of plants by squirrels burying or digging for their secreted nuts, and the danger of premature growth brought on by inopportune and untimely warm spells.

In addition, an inherent physical drawback of the raised bed results from its having a vertical surface on all four sides. These vertical surfaces make it easier for cold air to get into the interior, damaging the roots of crevice plants. These wall plants must be protected from wind, sun and freezing.

Still another factor, not significant on a flat surface or in warmer climates, but profoundly so in alpine ecology, is the need for immediate availability of nutrients for that precipitous spring growth. One should put down about an inch of well-granulated leaf mold on the first snow surface, followed by weather-proof winter mulching (stone chips) to keep it from being blown away, leached out or disturbed. When spring temperatures permit bacterial breakdown, a strong survival-growth food supply is available.

The following procedures are suggested. In late fall (November 1-15), a covering of Scotch Pine needles is scattered on the horizontal surface of the raised bed. The long very rigid needles provide, by their support, a modicum of insulation, reduce erosion, and permit any early snows to filter through and lightly blanket the surface. It is at this stage that finely granulated leaf mold is tossed over the top. Sometime in the first half of December (preferably after a snow deposit) a blanket of three to four inches of firm White Pine needles is placed over the Scotch Pine-snow-mulch combination, on the top and along the sides. This is lightly tamped down. The vertical surfaces will hold insignificant amounts of the white pine needles; therefore these surfaces present a special need.

It is anticipated that a greater volume of snow will fall subsequently. Shortly after New Year's Day, discarded Christmas trees are picked up. Long branches are lopped off and draped intertwined over the vertical surfaces of the raised bed. The shorter branches are positioned (intertwined) over the top. The remaining bole of the tree is placed over the middle to add weight and prevent the wind from blowing the tree branches away.

An effective deterrent to squirrel tunneling is the use of rose canes that were pruned in the fall. They are cross hatched over the top of the bed under the evergreen branches.

The removal of the mulches is done in stages. Circa February 15-28 the evergreen boughs are removed (but not the rose canes). In the first week of March most, but not all, of the White and Scotch Pine needles are taken off. All of these chores are subject to variations in the weather.

Plants

An effort was made to test the adaptability of particular alpine and rock garden flora before final placement in the raised bed. A special raised bed, situated in direct and constant sunlight, and with free air movement, was used for the test plants. This testing site included, side by side, plants from Israel, China, Switzerland, Yugoslavia, Scotland, Greece, etc.

Some parameters determining suitability for the rock garden included rampancy, nodal growth, leaf size, disease resistance, flower production, beauty of foliage or form, ability to grow with controlled minimal feedings, etc. These tests usually lasted over a two year growth cycle, and are still going on for many plants.

The list tested and discarded would be lengthy, so only a limited number of the successful plants are noted here.

Plants for the top of the raised bed: Almost all forms of dwarf *Narcissus*, e.g. 'Chloris', 'Dainty'; *Iris reticulata, I. danfordiae, I. cristata; Muscari armeniacum; Ornithogalum umbellatum; Puschkinia scilloides (libanotica); Dianthus plumarius* and hybrids; *Androsace sarmentosa; Arabis procurrens; Aubrieta columnae; Saxifraga sarmentosa; Armeria maritima; Anemone pulsatilla (Pulsatilla vulgaris); Aethionema saxatile; Achillea taygetea; Muelenbeckia axillaris; Stachys byzantina; Penstemon hirsutus pygmaeus; Gypsophila aretiodes; Veronica spicata* 'Nana'; *Iberis sempervirens* 'Nana', *I. pruitti; Potentilla alba, P. villosa; Primula japonica;* and a number of varieties of *Calluna, Erica* and hardy dwarf conifers.

Plants for the vertical rock walls: varieties of thyme; *Saxifraga stolonifera; Campanula poscharskyana; Dryopteris erythrosora; Asplenium platyneuron; Phlox subulata; Sempervivum tectorum, S. t. calcareum, S. arachnoideum; Sedum ewersii, S. acre; Ramonda myconi alba;* small leaved varieties of *Hedera helix.*

Plants for the border that merges with the patio or lawn adjacent to the raised bed: *Hosta tardifolia; Asplenium ebenoides; Athyrium goeringianum; Epigaea repens; Ajuga reptans, Bergenia cordifolia, B. stracheyi; Iris tectorum, I. cristata; Iberis sempervirens* and its smaller yellow Italian relative *I. pruitti; Epimedium pinnatum;* and *Euonymus fortunei* 'Gracilis'.

ALPINE CHICAGO

VAUGHN AIELLO
Chicago, Illinois

Mr. Aiello, chairman of the Wisconsin-Illinois Chapter of ARGS, is a sculptor by vocation.

I was born in Chicago. Some years later we moved to the suburbs, where we were surrounded by open prairies and ungrazed wooded areas. It was there that I developed my interest in native plants. Some of them I still keep near me; they are such joys that I would hate to be without them. By the time I finished high school most of the prairie had been turned over to developers, and I moved back into the city.

With my involvement in the arts, I quickly met Eldon Danhausen, whose house and garden have won much acclaim. I then met Ruth Tichy and Rose Vasumpaur. The four of us have been gardening together and attending most of the national ARGS meetings since 1970. Since I did not have a garden

of my own I just gazed at all the different types of plants and soon had an idea of which ones I preferred.

When buying a house began to seem possible, I decided the site would have to be within the limits of the city at the time of the 1871 Chicago fire. This is quite near the heart of the city now. I bought a Victorian brick row house, built in 1884 on undeveloped virgin prairie. In 1900, a Catholic church had bought the land south of the house and built a nunnery, school and church. The nunnery and school have since been torn down, leaving a vacant lot for parking. This has afforded full sun for the garden, its best asset. Another asset is the soil. It has not been moved since the last glaciation. The glacier laid soil two and a half feet thick on a bed of pure lake sand going thirty feet down to bed rock (at one time Lake Michigan had covered this land), providing good drainage. The house took possession of me on April Fool's Day, 1974.

The garden could be only thirty-five feet by twenty-five feet, so I had to plan carefully. Any trees would have to be on the north side so as not to interfere with the full sun. The alpine plants would be in the middle and on the south side. A few of the plants I wanted would like a moraine and in full sun definitely would need the underground water. As this would be a special construction, I decided to work other areas and see the effects of the full sun. Later, because I thought it would interfere eventually, I moved one tree *(Diospyros virginiana)* that I had driven all the way to southern Indiana for. I even moved the telephone and electrical lines.

The weather around Chicago is greatly affected by Lake Michigan. We have our own micro-environment within that of the Midwest. We have the normal Midwest weather that created and maintained the prairies, where the temperature drops in winter sometimes to minus fifteen degrees or lower with the humidity near five percent. In summer the temperature can be over a hundred degrees with ninety percent humidity. In January we can have sixty degree weather, then severe snow storms. Spring arrives practically overnight. Autumn is usually magnificent, though sometimes we need rain. Within that context is Lake Michigan.

What a difference it can make! The dogwoods that flower so terrifically east of Lake Michigan will not bloom west of it. The lake also moderates the daily temperature, summer and winter. Eldon lives three blocks from the water, I live one-and-a-half miles away, while both Rose and Ruth live about fifteen miles from the lake. A typical winter day is, for Eldon and me, about fifteen degrees; for Rose and Ruth about five. A typical summer day is, for Eldon and me, about eighty-two degrees; for Rose and Ruth about ninety-eight. This is only because of the lake. Rose and Ruth experience frost a good month before Eldon and I do. But when he and I are hit with frost it usually stays until the following spring. Away from the lake, the temperature rises so high during the day and drops so low at night that Rose and Ruth have spring at least two and sometimes three weeks before Eldon and me. This moderating influence of the lake gives me a milder winter, and allows me to grow plants that will not grow away from the lake. The west side of Lake Michigan is even given a different zone rating from that of the Midwest area.

Most of the native prairie plants around Chicago have been destroyed. However, I hunted and found a small piece of open woodland and brought back some *Phlox divaricata*, *Lilium*

canadense, *Sanguinaria canadensis*, a rotted tree stump and a few other plants for a woodland area next to the church garage. I added a Canadian Hemlock my mother had collected as a seedling in Wisconsin. A friend who has a quaking bog on his property donated a *Larix decidua* and a group of *Cypripedium calceolus*. A Hino-crimson Azalea placed under the hemlock has been the best performer in the area. Several different varieties of primroses were added, along with a few forms of *Anemonella thalictroides*. *Sanguinaria canadensis multiplex* was added and has been divided several times for increase. *Hepatica acutiloba* and *H. triloba americana* along with *Trillium grandiflorum* and *T. sessile* were added and have increased. A *Trillium undulatum* collected in the wild has survived and flowered again. Seed was sent to the ARGS seed exchange. The hepaticas have seeded also. *Thalictrum kiusianum* does very well and I have divided it for our Wisconsin-Illinois Chapter plant sales. To make a woodland type soil, I collected pine needles, coffee grounds and tea leaves, then mixed them all together with peat moss and native soil. For three years I collected Christmas trees from the alley for this purpose.

After spending the first year on remodeling the house and in soil preparation, I decided that several collecting trips would have to be made. I started by visiting the garbage dump in Door County in northern Wisconsin to bring back several clumps of *Cypripedium calceolus*. From two trips to the lakeside resort of a friend outside Detroit, I brought back many granite boulders in a rented trailer. From another trip to northern Wisconsin, I brought back limestone rocks. The next spring I placed mail orders to Siskiyou Rare Plant Nursery and Alpenglow Gardens. That is when the rock garden started to take shape. One trip to New York with a stop at Walter Kolaga's was disheartening as his nursery was already sold, but I stopped near Detroit for more boulders. Our local Wisconsin-Illinois Chapter plant sales greatly added to the variety of alpine plants. But it was the summer trips with Eldon, Rose and Ruth to the annual ARGS conventions with their plant sales that really began to fill the garden. These trips also took us to many nurseries and we all brought back many choice plants. I know of no sources for alpine material for many miles around Chicago.

In 1975, the four of us travelled to the Four Corners area of Colorado. I collected *Geum triflorum* (a real favorite) and *Erigeron pinnatisectus* (the best-performing erigeron I have seen, and it has produced seed). I collected and am quite proud of *Ipomopsis (Gilia) aggregata* with its spike of brilliant red tubular flowers. This has flowered every year in very sandy acid soil; I also collected a few others that outgrew their space and have had to be placed in other gardens. Since this experience, I have not added any more collected material because it seems to grow too vigorously in the garden and I want more alpines anyhow.

In April of 1976 I started the moraine. A large hole about two-and-a-half feet deep by eight feet long and five feet wide was excavated. Daily walks to a nearby old industrial area produced a large pile of discarded bricks. They were broken into small pieces and put into the pit. Sand, rubble and soil were thrown over this and watered to settle the mixture. Then I shaped the rubble mixture into a peak in the center so the water could run down both sides as I wanted acid and alkaline sides. A heavy sheet of metal enclosed in vinyl was cut and laid on top of this

form. The edges were cut so the water would drop into the rubble before it could reach the surrounding scree area. Sand and large granite pebbles were then laid down. A copper water pipe drilled with holes along its bottom surface was laid on the peak and connected to the water system. The water went down both sides so I put down the appropriate soil mixtures on top of the pebbles. This was watered until it all settled, but it had leaks. The most common type of leak occurred where boulders sat too close to the water pipe. Water finds the easiest path and it would come up under the rock. By moving the rock and fill this was stopped in the first week and it has not leaked since. I was then eager for plants that I could use in the moraine.

In July, we went to Seattle for the first Interim International Plant Conference. Our first stop was Dickson's Nursery in Chehalis, Washington, which we had visited in 1970 and 1972. This husband and wife team are probably the most hospitable gardeners anywhere. I acquired *Papaver alpinum album*, *Aquilegia saximontana* (which has provided many seedlings for Chapter plant sales and the 1979 ARGS convention), a *Gentiana acaulis* type, eight different dwarf conifers, several saxifrages, *Campanula cochearifolia* and its white form, and a *Lewisia* x 'Edithae.' Potted plants bought at a nursery are superior to mail order plants.

The ARGS tour of an estate garden in Seattle brought me face to leaf with the plant I had wanted most, *Dryas octapetala* 'Minor.' While I was leaning over it, Lincoln Foster noticed my appreciation and mentioned where I could acquire it, but added "It probably would not do well in your area." Putnam's Plant Farm provided the specimen. In Chicago, I planted it in scree type conditions and it has performed quite well. It has more than tripled in size and flowers from mid-May until November. It is never more than three days without a flower. Cuttings root easily in spring and early summer. I highly recommend it. Other plants acquired at Putnam's included *Silene acaulis*, *Campanula dasyantha (pilosa)*, *Phlox subulata* ssp. *brittonii rosea*, *Saponaria caespitosa* and *Asperula nitida* ssp. *puberula*. There were four of us buying plants, so the car was quite full and low to the ground. We also had an assortment of collected rocks. Once home, I began to plant the moraine. The next spring saw a vastly increased flowering period. The 1977 ARGS meeting in Valley Forge, our Chapter plant sales, and raising seed from the ARGS Seed Exchange have since increased that bloom.

After two and a half years, I have noticed that seedlings occur in the moraine more than in any other area of the garden. This occurs only along the border edge with the scree. Here *Hutchinsia alpina*, *Asperula nitida* ssp. *puberula*, *Aquilegia saximontana*, *Draba aizoides*, *Papaver alpinum*, *Erigeron pinnatisectus*, *Dianthus glacialis* and *Oenothera* species seed freely. The only two that I have not had to remove by weeding are the hutchinsia and the asperula. In fact I may have weeded the Alpine Poppies completely out. The plants that thrive in the moraine are few, but well worth the effort. They are *Campanula cochlearifolia*, *C. dasyantha (pilosa)*, *C. planiflora*, *Gentiana acaulis*, *G. decumbens*, *Androsace sarmentosa*, *Silene acaulis*, *Phyteuma comosum*, *Haberlea rhodopensis* and *Papaver alpinum* (to list the most successful). So I have left the moraine as it is and have added to the scree areas.

I am fascinated by tight buns and they occur only in the scree. It was

suggested I add even more gravel and I did. It seems that the plants withstand our hot, muggy summers if they sprawl on a rocky surface, producing their own shade to cover their root systems. The best of the scree plants are *Armeria juniperifolia* in all its varieties, *Asperula lilaciflora* (which flowers all summer until frost), *Draba aizoides*, *D. rigida*, *Dianthus* 'Mars' (a blood-red double), *Lewisia cotyledon* in several forms, *Asperula gussonei*, *Silene quadridentata*., *Dianthus alpinus*, *Aquilegia bertolonii*, *Saponaria caespitosa*, *S. pumilio* and *S.* x 'Olivana', not to mention five varieties of dryas and two varieties of edraianthus. Oddly, several *E. pumilio* have failed to make it through the summer here, while they have succeeded in another Chicago area scree. All in all, it is the scree that produces the healthiest plants and the best performers in this Chicago garden.

ALPINE HARTFORD

E. LE GEYT BAILEY
Hartford, Connecticut

Rock gardening in the city on a hundred square feet presents problems of adjustment which you would not have to make if you gardened on an acre or two. For example: the nine feet between my house and the neighbor's driveway was ideal for a shady garden, but the household fuel hose had to be dragged through this area to the intake pipe at the back of the house. What to do?

I dug a trench nine inches deep and the width of a wheelbarrow from the street to the back of the house. Three railroad ties and some flat rocks formed raised beds on either side of the trench to accommodate the soil I had dug out. I filled the trench with leaf-mold and gravel. To my surprise, within a few years seedlings of *Erinus alpinus*, *Viola labradorica*, *Hutchinsia alpina*, and *Draba aizoides* began to appear in the gravel path. My greatest pleasure was the appearance of many *Lysimachia japonica minutissima* seedlings in the gravel. The path, built originally to accommodate the oilman and his hose, has become an additional growing area I did not expect.

Not having a wall or crevice facing east or north where I could grow lewisias in a vertical position, I sank concrete blocks in a sunny position. I put leaf-mold in the bottom of the holes and filled them with gravel well up around the plants and edges of the blocks. I feed the plants with fish emulsion and they grow beautifully.

Mrs. Herbert Sheppard of Burlington Rd., Harwinton, Conn. 06791 would like to buy or swap color forms of *Asclepias tuberosa*.

DWIGHT RIPLEY—PLANTSMAN

H. LINCOLN FOSTER
Falls Village, Connecticut

As an inadequate *in memoriam* I would like to tell you a little about Dwight Ripley, a rare plantsman. He, and his life-long friend, Rupert Barneby, were awarded the American Rock Garden Society's Marcel LePiniec Award in 1974, but unhappily Dwight Ripley died on December 17, 1973 before the award could be presented.

Dwight was born in London, England, October 28, 1908, to an American father and an Irish mother. His paternal forebears and relatives had for many years lived in Litchfield, Connecticut, as does still his cousin, S. Dillon Ripley, the Secretary of the Smithsonian. Dwight was christened Harry Dwight Dillon Ripley, a cumbersome name he soon shortened to Dwight, except occasionally, for partial concealment, when he became in the telephone book or ARGS membership list, H. D. D. Ripley.

One knows little about his early years in England except from a few revealing references in his later writings about plants. For instance, I find this in my little red book — something I will refer to on and off. This volume is the bound copy of articles that Dwight wrote for the Alpine Garden Society during the 1930's and '40's — a treasured gift to Timmy and me from Rupert.

He wrote in an account of a trip through Oregon in 1945:

> To the author there has always been something special about the Umbelliferae, or Parsleys, and a patch devoted to their culture was begun at the tender age of nine. Coriander, chervil, sweet cicely and fennel were at that time accorded the lavish care I would probably bestow today on *Kelseya uniflora*, and a week-end guest of my mother's was known to have packed his bags precipitately after tasting one of my terrifying salads. Yet I'm well aware that Ogden Nash spoke for the horticultural world when he wrote his immortal two-line poem:
>
> "Parsley
> Is gharsley."
>
> As far as the rock gardener is concerned, the Umbelliferae (except for *Seseli caespitosum* and the South American Azorellas) are gharsley indeed. . . .

This reminiscence may suggest that his early attention was solely to edible herbs. Far from it. From Rupert I learn that Dwight had fallen in love with plants as a small boy and by the age of sixteen had committed to memory the Latin names of all the British wildflowers listed in Bentham and Hooker's Manual.

Dwight's father died when he was six and his mother when he was twelve. At about that age he was sent by his guardian, the family solicitor, to Harrow but who knows what was expected of him. It is likely that his devotion to the playing fields of that preparatory school was not the sort to prepare him for any future Battle of Waterloo. While there, enduring what must have been in the 1920's a typical English boarding school existence, he did meet a fellow-student of congenial temperament, Rupert Barneby, who has since indicated his initial amazement at Dwight's prodigeous knowledge of plants with their Latin names. This friendship endured a separation while Dwight went off to Oxford to pursue courses in languages and Rupert off to Cambridge to steep himself in

The Cliff House in Horam, Sussex Crowborough

history.

During his years at Harrow, Ripley began experimenting at home with a variety of gardens. In Horam, Sussex, he had inherited his first rock garden and a small greenhouse. As his experience and enthusiasm grew so did his imaginative innovations in horticulture. By 1935 there were special sand-beds and water-gardens and three alpine houses, one of which contained the still reknowned limestone cliff built against a rear brick wall with a cantilevered glass roof and removable glass panels on the front and sides. You can read of its continuing influence in Roy Elliott's accounts in the Alpine Garden Society's Bulletin.

Dwight's innovative structures were prompted largely by his annual botanical explorations and collecting trips with Rupert into remote areas of the Mediterranean basin which began in 1927. Many of these trips include forays into Spain until that country was closed off by the Civil War.

In preparation for these journeys, Dwight and his friend, Rupert, pored over botanical literature in a wide range of languages and studied rare plants in herbaria. The record of these trips and unusual plants discovered and rediscovered are to be found eloquently set forth in the pages of the AGS Bulletin from 1930 to 1948. He started modestly with an article of three and a half pages titled "Some Plants of Southern Europe." He dives right in:

"The following is a brief description of Mediterranean plants now being grown in a cold greenhouse at Horam, in Sussex, the majority of which I believe to be new to cultivation in this countrv."

There are twenty-two plants precisely and elegantly described, none of which I believe, even today, are in general cultivation. This first article was follow-

ed by a longer one titled "Plants for the Cold Greenhouse," this time describing twenty-seven plants collected in North Africa, the south of Europe, and in California (and this provenance is prophetic.) As a sample of Dwight's ability to capture in words the essence of a species let me quote from this article:

Astragalus coccineus. This is not only by far the most sensational member of its genus, it is also one of the very finest alpines to be found anywhere in the United States; though many may take exception to the epithet "alpine" as applied to a species of the high deserts of California. It occurs here and there from Inyo County to the western edge of the Colorado Desert, at an altitude of 3,000-8,000 feet, growing for preference on apparently bone-dry slopes almost devoid of vegetation, but with the soil quite damp a few inches beneath the surface, round the long, deeply burrowing taproot. The leaves are clothed in dense white silk (as are also the seed-pods), and from their snowy mats rise up in early spring, on short stems, the heads of comparatively few pea-flowers, nearly two inches long, of intense scarlet. One's first glimpse of this plant is unforgettable, an excitement hard to match and harder still to communicate to others. The finest specimens I ever saw were growing on the sides of a small canyon near Lone Pine, at the eastern base of Mt. Whitney, where the desert sand had not yet ceded to the influence of the mountain conifers. There it was obviously happy, revelling in the deep gravel that contained not a trace of humus — undisputed king of that particular castle except for an annual Gilia or two and a bright red Castilleja, faint echo of its own inimitable splendour. It may be grown, not without difficulty, in a very deep pot filled with granite chips and coarse sand, plunged to the rim in ashes; and the crown should be guarded from water as rigorously during the summer as in the darkest days of winter.

He rounds out the alphabetical parade of plants from diverse areas with this account:

Statice (Limonium) asparagoides. This Statice is a native of the sea-shore at Nemours,

Astragalus coccineus R. Barneby

in Algeria, whence it extends to a single point just over the Moroccan border; and its rarity is only equalled by its beauty. Would that one could say the same of Nemours! For here indeed is a plague-spot, as hideous and profoundly depressing as the drabbest of those Spanish fishing-villages which display for the passing tourist, between the sea and the southern base of the Sierra Nevada, their own peculiar horror. In order to reach the Statice one has to pass the local slaughter-house, jumping lightly (handkerchief to nose) over the gully that drains its unnameable foulnesses into the bright waters of the Mediterranean. But there, waiting in the shadow, lurks the prize, a few young plants perched within reach upon their steep escarpment of red gypsum. The older plants are out of reach: enormous black trunks sprawling and twisting over the cliff's face, from which erupt at intervals the long leafless branches as fine as filigree and rimed with blue, more intricate even than the fronds of *Asparagus acutifolius*. In reality they are composed of very many minute branchlets, interminably dichotomous, covered all over with little cladodes of the same length as themselves. The basal leaves are small and ovate, dying away soon after the branches begin their growth; the inflorescence is produced in August, and turns out to be a generous panicle of cerise. Cuisin's plate of this Statice in the "*Illustrationes Florae Atlanticae*" is among the most inspired *tours de force* to be found in any of the great botanical works.

One can forgive, I think, his flourish of scholarship at the end.

His next piece, titled simply "In the Mediterranean", is a more leisurely account of yet another journey with Rupert Barneby, who is now official photographer. There are two of Rupert's superb photos illustrating *Matthiola tricuspidata* and *Iberis candoleana* accompanying the article. Dwight begins his essay:

In January of last year, accompanied by my friend Rupert Barneby, who took the photographs illustrating this article, I visited Cape Palinurus, famed locality of the unique *Primula Palinuri*, lying more than eighty miles south of Naples on the way to Calabria — a remote and undramatic promontory isolated between stretches of mountainous coast, marked only by a little striped lighthouse and a cluster of fishermen's huts. Centola, perched on a hill a short way inland, is the nearest village, and if you descend from here the Primula is almost the first plant you see on arriving at the shore. It is worth the five hours' journey from Salerno to witness the bizarre spectacle of an Auricula, so essentially alpine in appearance, growing down by the very edge of the Tyrrhenian. The large glandular rosettes, usually single, more rarely several to the trunk, sit quite happily a few feet above the dark blue sea, listening, not to cow-bells or the chatter of excited spinsters on their first trip to the Engadine, but to fishermen's more ordinary talk and the music of waves falling on a southern beach. The archdeacon of rock-gardening, who never saw this plant *in situ*, describes it with what can only be called genius as occurring on "limestone cliffs . . . where it lies baked and dust-covered in the fine dry silt of the grottoes". In point of fact the Primula affects open banks, so steep as to be almost vertical, of a curious orange-coloured sand, known technically as friable arenaceous tufa, which characterises this piece of coast and which I have never seen elsewhere in the Mediterranean. But then the word "grotto" is irresistible.

and ends:

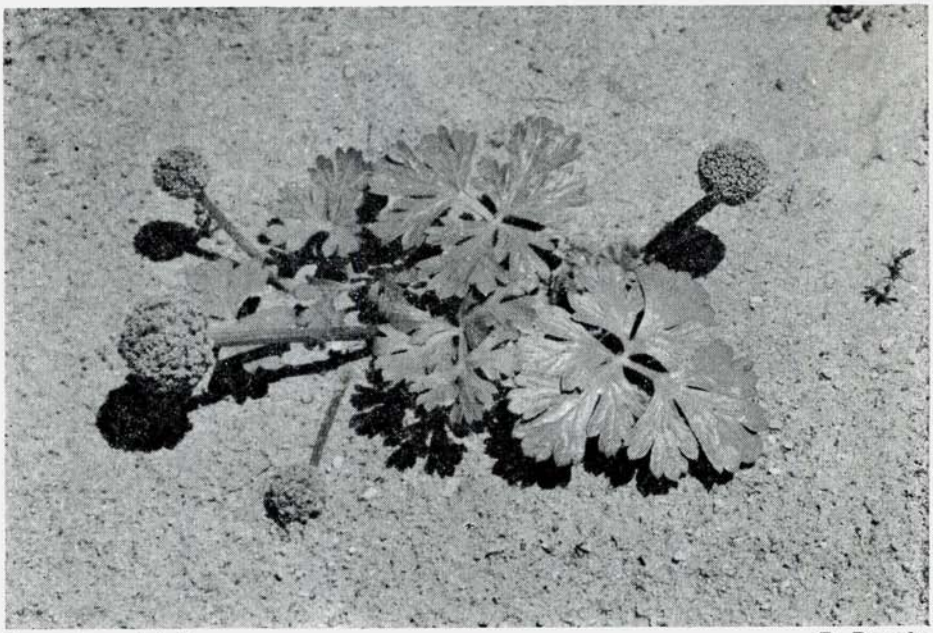
Returning home last summer, we stayed for several days in the Puy-de-Dome, prosaic yet to us exciting, while Rupert tracked down critical *Biscutellas* among the scoriae of dead volcanoes or in small granite gorges by the side of streams. A wind was blowing over the high plateaux, unbelievably cool after the stifling heat of Provence, and as we scuttled happily from puy to puy, with the air becoming fresher and more bracing every day, we told each other that the Mediterranean was quite definitely overrated. That inn at Cavaillon, for instance, had been beyond a joke. And then, the mosquitoes. . . . Back in England, we revelled in the sight of lawns and elm-trees, river-beds that ran with water, and the large grey clouds. Never again, we vowed, would we leave this paradise on earth.

Two months later I found my friend poring over a road-map of Morocco. His bags were almost packed, he said. It seemed there was a *Trachelium* near Fez. . . .

Again one can forgive his measured thrust at Farrer.

Then as a sort of final farewell to his Old World explorations he has a long piece called "A Journey Through Spain" about which he confesses:

The following notes, to be frank, are nothing more nor less than an expression of uncontrolled nostalgia, a prolonged harping on a set of all too precise memories acquired over a period of years spent in the moun-



Cymopterus ripleyi R. Barneby

tainous regions of Spain. . . . It is the self-indulgence of one who has been exiled far too long — almost a decade, in fact — from the least understood and most arrogantly beautiful country in Europe.

Yet in spite of more than a dozen visits to the Peninsula, some lasting several months, there are still many sierras that I have never even glimpsed, or that remain in the mind's eye merely as intriguing contours seen in passing from the train or bus, shapes of momentous indigo lying on horizons as cold and virtuous as the seas's; the marble gorges of Yunquera, for instance, or dank Riopar with its caves and cataracts poised high above the white dust of Murcia. . . .

The whole essay is a magnificent *recherche du temps perdu*, erudite and botanically precise but most fancifully structured.

From there on the pages of the AGS Bulletin record accounts of the Ripley-Barneby expeditions into the flora of the United States and adjacent Mexico. They had taken up residence in Beverly Hills, California in 1936. But we shall see later that the beauty of the Mediterranean world still haunted them.

Here in America was a new world, wide and inviting. Over the years these two explorers chased down many a plant recorded only once years before in diverse botanical publications. And they discovered a number of utterly new and unknown ones. There are five species in four different genera named "ripleyi" and several "barnebyana."

At the time of the early American explorations, the gardens and alpine houses at the Spinney in Sussex were still there to receive collected plants, though during the war they did receive some damage from bombing. The reception and care of the new plants from America, plus the management of the established collection under increasingly trying circumstances was entrusted to the care of a series of gardeners under the guidance of the elder W. E. Th. Ingwersen. Mr. Ingwersen, noted nurseryman and himself a plant explorer, was a devoted admirer of Ripley's as is evident from the series of

letters dispatched by him to America recounting the affairs at Horam. I have been privileged to read these Ingwersen letters and was told I might throw them away after reading but they are too fascinating for such a fate. I have, therefore, sent them back to the present generation of Ingwersens for possible biographical use.

Eventually it fell to the elder Ingwersen's lot to arrange for an auction of the plant collection at the Spinney. This sale was carried out November 12, 1951. I have a copy of the sale catalog with notes of prices given for each lot, an amazing document. I can visualize the formidable gathering of notable horticulturists of the Alpine Garden Society and others cagily bidding against one another. Prices range from five shillings for Lot 108 containing *Bupleurum plantagineum*, *Sedum tuberosum* and three others, all the way to seven pounds, one and six for Lot 96 that included *Lepidium nanum*, *Salvia vivacea*, *Cyclamen creticum* and three others.

During their prolonged absences from England and until Ripley's final disposal of the Spinney at Horam, the two friends made numerous botanical trips in the United States, primarily in the southwest. They were frequently based in California and deposited their herbarium specimens at the California Academy of Sciences there or at the New York Botanical Garden. Ripley's elegant accounts of these explorations, with magnificent pictures by Barneby are to be found in ten articles in the Alpine Garden Society Bulletin from 1940 through 1948.

There are such titles as "The Limestone Areas of Southern Nevada and Death Valley", "Rarities of Western North America", "Utah in the Spring", "A Trip Through Oregon". These are all wonderful reading, full of plants and their discovery. I can't resist giving you just a brief sample.

> On the morning of June the 1st, 1945, I awoke in a small, battered bedroom of the only hotel in Mountain Home, Idaho, with a feeling of exasperation and one of those moderate hangovers half-way between a simple headache and the condition, described so accurately by S. J. Perelman, in which "parties unknown seem to have removed one's corneas during the night, varnished and replaced them, and fitted one with a curious steel helmet several sizes too small." I had spent the previous evening pounding a piano in a bar for the amusement of the local cowboys, and these innocent souls, inflamed no doubt by the novelty of my urban tempo after a lifetime of "Home on the Range" and similar forthright compositions, had kept me well supplied with refreshments.
>
> But sleep, when I finally dragged myself to my pallet, refused to come: all night long the cowboys tramped up and down the creaking stairs of the hotel or shouted happily to each other in the corridors, while the less virile retired to their rooms to pass out, breathing peacefully with the quiet, regular rhythm of pneumatic drills. Shortly after dawn I fell into a fitful doze, and at six-thirty, wide awake and pondering on the world and its follies, I got up and dressed.
>
> A little later a knock sounded on the door. It was my friend Rupert Barneby, looking enviably crisp, with a stack of drying papers under one arm and our camera and tripod under the other. Together we descended to the hotel cafe, where I forced my teeth to gnash sullenly for a few minutes on something yellow accompanied by two slices of salt pork, and gulped down a large cup of coffee in preparation for the day's collecting. By seven o'clock, armed with a thermos and some sandwiches wrapped in cellophane, we were in the car and off. . . .

Near the end of these years of American botanical explorations recorded in the AGS Bulletin and in some American scientific journals, the two explorers settled permanently in the United States, first at Wappingers Falls, N.Y. There, on extensive outcrops of Hudson Valley shales, they devised a large rock garden and erected an alpine house where they grew a continuing introduction of plants from their annual pilgrimages across the country and into Mexico. From Wappinger's Falls came a few Ripley

The Rock Garden in Wappingers Falls, N.Y. R. Barneby

articles for the Bulletin of the American Rock Garden Society.

But it was at this time that Dwight turned more and more of his attention to other interests that had for long absorbed him in the periods between botanical explorations. He was an avid collector of avant garde art and was himself an accomplished artist with a series of one-man shows in New York. His first book of poetry, a volume as slim as it is rare, appeared in 1930 and in 1952 he published a long poem called "The Spring Catalogue", a lyrical extravaganza invoking the muses of horticulture and of kinky erudition.

For years he had been at work on a compilation of botanical information based on the vernacular names of plants in over thirty languages and dialects that he had taught himself to read, in many of which he was truly fluent. This vast and erudite manuscript, which he did not live to finish, is deposited in the Library of the New York Botanical Garden.

In 1960, following an almost inevitable breakdown of spirit and physical illness, Dwight moved to Greenport, Long Island, N.Y. There he continued to work on his dictionary of plant names and carried on with his painting and poetry. And it was there that together Dwight and Rupert created a unique and wonderful garden — The Sanctum — a summary and a synthesis.

I know nothing of how the Sanctum was conceived, nor of its original construction. When I first saw it at the far end of a long narrow sweep of grass that had been mown in stripes running out from the house, it was a beautiful and shocking vision. From a distance, set as it was against a line of tall, rather thin pines with blue

sky through and beyond them, it appeared like the partially tumbled remnants of some Greek temple. There seemed to be toppled pillars in the foreground, scattered here and there, embraced in a flat sandy space between a broken-shadowed back wall and the two wings of a roofless structure completely open on the fourth side.

As we advanced, kicking out of our way, as I remember, rabbits here and there on the grass approach, details became clearer. The wide back wall and the two shorter wing walls, white and gleaming in the Long Island summer sun, were of uniform height, but their faces were not flat and even. There were subtle juts and embayments setting up the most delicately balanced and spaced play of light and shadow along their entire expanse. On closer approach we could discern another even paler pattern breaking across the vertical pattern. There was a strong horizontal line tracing the walls about one third of the way up and fainter lines above and below this. These fainter horizontals soon showed as the indented joints between the large white-painted concrete blocks of which this marble-appearing temple was indeed constructed.

The firm horizontal line proved to be a double row of sandstone facing-blocks laid flat on the top of a wall, five concrete blocks high, sweeping around in front of the three taller walls and about three feet out from them. Between this lower wall and the back wall on all three sides was a raised bed whose soil mix went down to the earth between them. Here against these textured and irregular back walls of glistening white, broken occasionally by the silhouette of subtly trimmed dwarf evergreens trained against them, were beds with three different light exposures and with some irregularity of surface where soil and facing-stones were built up into low mounds and ledges.

I was aware, from the general geography of Long Island, that the long back wall faced east, that the wing on our left faced to the north and that on our right to the south. Entirely open, of course, overhead there was a strong play of light throughout; yet I knew that during the course of a day all of these long narrow raised beds were bathed in varying intensities of sunlight.

I must admit that some of my analysis of the structure came later because when we got close to the raised beds I was literally overwhelmed with the variety and elegance of the plants. There along the north-facing wall were tight cushions of Kabschia Saxifrages and other rare alpines along with some compact woodlanders. And in the sunnier reaches were mounds and tuffets of such diversity and rarity that I could only begin to absorb the botanical names as Rupert or Dwight provided them in answer to my repeated — "What is *that?*" Here, indeed, was an unbelievable assortment of rare and stunning plants. Only a few had been purchased; some had been grown from seed; most had been collected in the wild on forays into the Southwest of the United States, the highlands of Mexico, or the lofty regions of the mountains about the Mediterranean.

Besides the plants in the raised beds, there were others grouped into special micro-habitats in an assortment of round and square planters set here and there on the sand floor of the rectangle formed by the three walls. Each planter was a commercial artifact: a section of concrete septic tank; sewer pipe; conduit; or chimney tile, all set on end, painted white and each filled with its special soil blend, in most cases their surfaces enhanced with artfully placed rocks. These were what I had

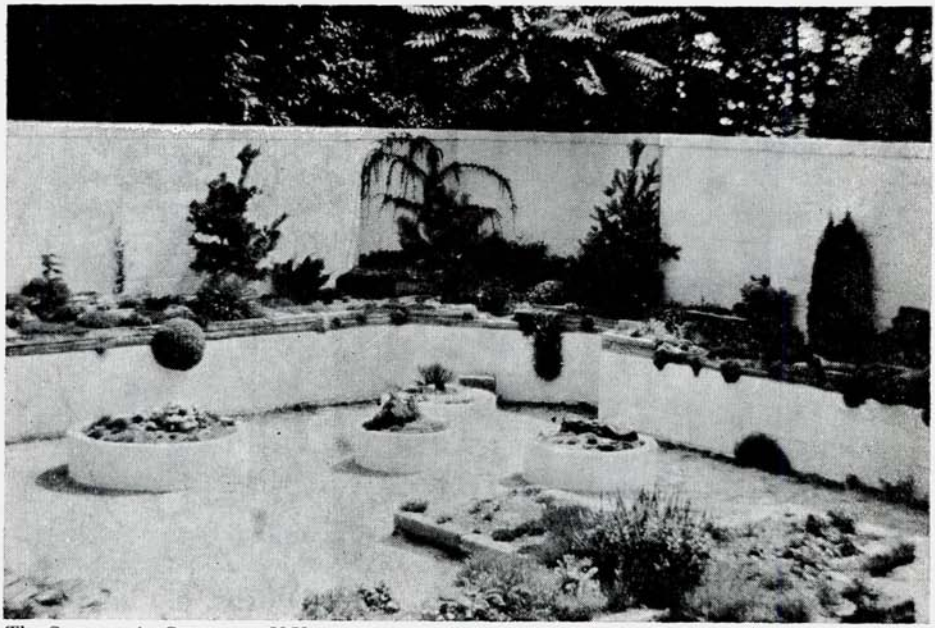
mistaken for tumbled columns. In one was a collection of plants from the Caucasus, in another plants from the Spanish Sierra — all out in the full plant-huddling sun.

Though my first visit was in August when few plants were in bloom, the very health of the vegetation, the beauty of the foliage, and most of all the absolute clarity and beautiful proportions of the structural setting made my spine tingle with admiration — and a touch of envy for the imagination and artistry that had invented this stunning conceit. Here was indeed, a piece of architecture, simple and straightforward, using the most prosaic materials. It combined in a magical way the romantic beauty of a tumbled Greek temple and the starkest angularity of a modern building. Form followed function — less was more.

Then a couple of years later I returned. No longer along the approach from the house did I see the open face of the three walls. Across the front was a new concrete block wall, not as high as the other walls nor as stark. As I approached once again down the long narrow sweep of grass, it was as though I were looking toward, not a Greek temple, but rather a Moorish or Middle-Eastern building.

With some ordinary concrete block and an elegant selection of pierced and patterned ones a front wall had been constructed. This filagreed wall extended on either side beyond the original side walls, which had also been extended outward into two set-backs to form at each end of the building elaborate, almost sculptured entrances. The front had balanced square juts and a long bay, the lower portion solid, but topped from end to end with fluted and open-spaced blocks. One entered from either side through a Moorish gateway.

Against this front wall, inside the garden, was a whole new built-up rock garden constructed entirely of the same



The Sanctum in Greenport, N.Y. H. L. Foster

formal slabs of facing-stone used to top the original raised beds. On the sand floor within were still the concrete planters, but, in addition there was a lop-sided crucifix of flat facing-stones framing a new ground bed. There were more plants and more wonderful plants.

Where previously I had in joking letters referred to the Sanctum as the "Sewer Garden" alluding to the planters, I now wrote Dwight about the "Seraglio" because the reconstructed garden gave a sense of a Mohammedan secret enclave, his special harem with his special plants.

Now I begin to realize that Dwight Ripley was always years ahead of his time. What had been International Modern architecture fitted most eloquently to rock gardening had become a piece of architecture that anticipated a parade that has become known as Neo-Modern.

Alas, this monument to a man of most precious sensibilities is no longer a sanctuary for alpine plants of rarity and wonder. In some ways, I feel sure, that if Dwight Ripley knew, he would be content that his work of art, was as subject to time and fashion as are the fritillarias and dionysias.

God rest him.

Edith Hardin English

Edith Hardin English, born in Bellingham, Washington, in 1897, died in Seattle on June 19, 1979. Scattered throughout many northwest gardens are living memorials to her and to her late husband, Carl English Jr.; memorials in the form of plants introduced by one or the other of them, plants named by or for them, plants which came from their garden or nursery. When I walk through my garden, I am reminded of them when I see *Lewisia* 'Editheae', *Pleione bulbocodioides* 'Pricei'. *Dodecatheon pulchellum* 'Red Wings', *Metasequoia glyptostroboides*, or numerous others.

Edith English was a lady of many talents: as a teacher of botany and horticulture; as a photographer of this region's flora and fauna; as a botanical illustrator; as a painter of word pictures through her many contributions to various publications; as an authority on native flora (co-author of *Flora of Mt. Baker*, 1929); as guide and mentor to countless students, particularly through youth camping trips into the Olympic mountains as described by San Francisco horticulturist Kate Read (Winter 1979 ARGS Bulletin) when Edith English was the subject of one of the series on outstanding western plantswomen.

Mrs. English was the recipient of many awards and honors throughout her lifetime including, in 1966, the Award of Merit from American Rock Garden Society given jointly to Edith and Carl English for their many individual and combined contributions and achievements. In recognition of her work with irises and particularly for the development of *Iris* 'Golden Nymph', she was given an award of merit from the American Iris Society and, in 1950, the prestigious National Horticultural Award presented by the National Federation of State Garden Clubs. She was acclaimed as one of the first of the American hybridizers of Pacific Coast irises and introduced to the gardening world the lovely white *Iris douglasiana* 'Pegasus'.

Edith and Carl English played an important part in the development, appreciation, and study of horticulture in the Pacific Northwest. There are many of us who feel fortunate and honored to have known them both. —N.B.

A SHORT SHORTIA STORY

ROY DAVIDSON
Seattle, Washington

Photograph by Stephan Doonan

It has been often said — and doubtlessly with great wisdom — that there is nothing new under the sun, but no plantsman has ever really believed it. Researches into the literature of the jewels of Diapensiaceae, that small family assemblage of pixie-mosses, galax, shortias and schizocodons and diapensia itself, have led to a number of clarifications, and investigations into wild places, investigations that almost yielded a truly "new" species to horticulture, one in cultivation nowhere, insofar as can be determined.

Botanists of late years seem almost consistently to want to lump both *Schizocodon* and *Shortia* into the one genus (called *Shortia*) and there may be quite sound reasons for this. However it might be thought quite unnecessary for understanding such a very small family. Although the Japanese and American species of "true" *Shortia* can be interbred* and presumably all the *Schizocodons*, of a single species must surely be quite interfertile, members of the two groups simply do not muddle themselves in hybridity. This is certainly no criterion for keeping them as two distinct genera, but to most gardeners, at least, *Schizocodons* remain *Schizocodons* regardless.

Steve Doonan accompanied my second visit to see the oriental species in the autumn of 1972. We asked ourselves as we clambered about on the Japanese ranges: What were the ecological relationships of the two? We explored colonies of each in close proximity, at similar and at diverse elevations, on a variety of substrate, with similar and with distinct plant associations. We never found the two together. Above on the topmost summits of the same ranges *Diapensia* isolated itself from both.

Our handy reference list of the Diapensiaceae concluded with a puzzling set of items from *Index Kewensis*, seeming to indicate that Hayata had described several species of a genus called *Shortiopsis*, but we had been unable to verify or to find anything more about them, and while in Japan we hoped to substantiate some of our guesswork, such as that *Shortia rotundifolia* might be the same thing, certainly a presumptuous idea. Could it be possible (we reasoned) that there were several unknown and unsung family conveners hiding in the remoteness of Taiwan's mountains? Would it not be as logical to presume there is in reality only a multiplicity of names?

Dr. Moriya, who had so ably and patiently aided our explorations centered about the mountains of Tochigiken, came up with an encouraging breakthrough, a little known reference to the effect that *Shortia ritoensis* was conspecific with *Shortiopsis ritoensis*, one of the listed names. The range was stated to be the Loo-Choo (Ryu-Kyu) Islands and south to Taiwan, thus correlating a reference to *Shortia*

* *Shortia* x *intertexta*, raised in England by Marchant; Doonan has remade the cross here.

rotundifolia that Brian Mulligan had provided.

That clinched the matter, we were certain. Forehandedly we had air tickets that allowed us to go as far as Hong Kong and with stopovers, so we immediately set about making arrangements to visit Taiwan. But prior to that departure we set off in exploration of the endemic white-flowered *Schizocodon soldanelloides* var. *intercedens*, stumbled upon with the Craigs in Gifu on my prior visit in 1969. Of this we were fortunate in obtaining much cutting material from the enormous old plants and a bit of seed, adding considerably to the stock of this fine introduction. In no case did we dig any plant of any of these as we found them, taking only cuttings and seed if any was found. We were gifted with a number of interesting variations as they are cultivated in Japan, but found that our own collections were just as interesting as they flowered later.

After a pilgrimage to Kyoto, we in due time arrived in Taipei and went immediately to the botany department of National Taiwan University, where Dr. de Vol literally opened the Shortia door for us. Folder on folder of our plant was on file as well as a quantity of unmounted material. In the reference library we were shown Hayata's published descriptions and the note to the effect that should this Taiwan aggregate of Diapensiaceae prove sufficiently distinct from *Shortia* it should become known as *Shortiopsis*. There was no actual publication of the name *per se* and yet it had found its way into the Kew record, thence to our list. Hayata had published them as *Shortia* species, a total of five in number. In passing, we noted a single sheet of another rare member, the Himalayan *Berneuxia thibetica*, distinct in several ways, with a long lanceolate leaf blade and tall raceme of small fringey flowers. It had originally been considered to be a *Shortia* species.

After photographing several of the sheets and making extensive notes, we obtained such special permits, hotel reservations and rail tickets as would allow us into the forestry preserve high in the mountains near the base of Mt. Morrison, also known as Yushan, Jade Mountain and Niitakiyama, the highest prominence between the peaks of the Himalaya and California's Sierra Navada. Our specific destination was Alishan at about 7200 feet or approximately half the height of Yushan, and barely to the north of the Tropic of Cancer.

It was the end of September as we traveled by express down the western side of Taiwan, a generally flat coastal plain on Formosa Strait, the narrowest part of the China Sea. At Chia-yi, a point about halfway down the island, we changed to the picturesque narrow-gauge logging railway and were soon climbing from the humid agricultural flats of sugar cane and ripening bananas. It was hot and uncomfortable, but all that was soon forgotten as a fascinating transition came through the windows as though flashed onto a movie screen. We began seeing occasional tree-ferns amidst the dominant broadleaf evergreen trees, then the nested treetop epiphytes like crows nests; soon tree-trunk-bracted ones, then lower and lower they grew as we climbed higher, until as we reached the conifers they merged to surface epiphytes in the moss and then to terrestrial species. The railside was neatly cared for, doubtlessly hand cut to allay the jungle as well as to provide fodder for animals. There were miles of planted subjects, both native and introduced materials, red flowered without exception. Taiwan's own

Rhododendron oldhamii seemed a favorite, and here at lower elevations it has a non-stop flower record. Such mundane things as cannas and pelargoniums blazed forth from the jungle's greenness.

After a couple of hours of maneuvering the terrain of plunging ravines and knife-ridges we came to the seeming impasse of sheer cliff just beneath the summit. The procedure halted for those who wished to debark and pay homage to a venerable old chamaecyparis. From this point the track was engineered back and forth in a series of reverses, and with each change of direction we gained a bit of elevation until to everyone's expressed relief we emerged at a point just beneath the rounded summit of Mt. Ali, and thus arrived at Alishan.

Alishan must be one of the most beautiful places in the world. In the fifty years of their occupation (1895-1945) the Japanese commenced the harvest of the huge spruce and chamaecyparis trees and built the railway to convey the logs down the scarp. In the days of earliest botanical exploration, these high mountains were said to have been inhabited by warring tribes of savages. As the immediate area had been cleared, a comparatively gentle little vale became a village set about the perimeter of a most lovely park, retaining the natural terrain and indigenous plants. Miles of beautifully laid, broad stone walks and stairways led throughout. As there are no automobiles there are no streets. In one secluded area we came upon a magnificent stone and bronze shaft, a memorial to the forest that had been sacrificed. Further along a botanical garden identified the native plants for us, and nearby a most terrible "mickey-mouse" of a temple had broken mirror and pretty-rock roof ornamentation that would frighten the most evil of devils. As the pavement looped back to climb toward the station again, we crossed a broad lagoon with a pagoda-bridge for lovers. There are several large resort hotels and the residences of the forestry and railway people, a few curio shops but those near the station. We at last climbed back and paid our call on the forestry officials, and there we met a visiting plantsman who knew the shortia well. We should go, he told us, by the early morning work train further beyond, to open ridges higher and closer to Yushan, and there it would be plentiful, and we should easily return by evening.

As we left that encounter, we could scarcely believe our good fortune and the sequence that had led to it. But we contained ourselves sufficiently to admire a flourishing bank planting of pleione on the railside. The summits roundabout had been commercial collecting stations for *P. formosana* at an earlier time. Now they are scarce, and these were safe only behind a protecting enclosure. We lazed away the remainder of the afternoon examining even more ferns (the island has well over six hundred species) and hiking along the railway toward our new goal. The hollow of an immense decaying stump was festooned with perhaps a dozen sorts of fern, from leathery thongs to the laciest frailty. There were ground orchids of some variety and a neat ground-covering of *Gaultheria itoana*. Although snow may fall at Alishan, the situation above tropical jungle causes it to melt without freezing action and the area is sheltered from prevailing winds.

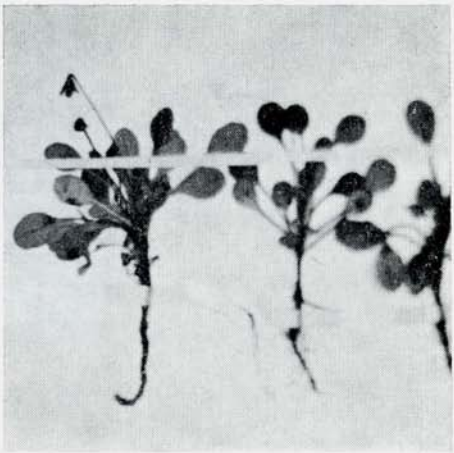
Sunset was an unbelievable spectacle at this elevation on the verge of the tropics, but its promise of tomorrow was not to be ours. A deluge in the night destroyed a section of the railway and we were obliged to be evacuated,

to hike out over a low mountain to meet a special train that had come up from below. Men ported the heavy luggage and the old and infirm who had been on holiday. It was no easy trek for any of us; the well-worn trails were steep and muddy. It did give, however, an opportunity of observing how the mountain people live, their jungle shaded by a wire treillage of bitter-melon to provide most of the world's supply. By nightfall we were back at our Taipei hotel, and I would have given the world for a good baked potato!

We are satisfied that there is a third species of *Shortia**, safely hidden away and obviously plentiful in the high mountains of eastern Taiwan and islands to the north, but never as far north as the schizocodons are found, the southernmost of those being on the Japanese island of Yaku.

In 1868 Maximowicz described *Schizocodon rotundifolius* from Taiwan's mountains; this was later subject to transfer, becoming *Shortia rotundifolia* (Maxim.) Makino. Meanwhile in 1913, Hayata described *Shortia exappendiculata* and *S. transalpina*, at which time he proposed that should they be found sufficiently distinctive they should become known as *Shortiopsis* species. In 1914 he followed with the related *S. ritoensis* and apparently the further *S. crenata* and *S. subcordata*, now reduced to forms of that. Thus the amount of variability is seen to be very similar to that of schizocodons and other plants with a broad altitudinal range. For discussion here the Taiwan plants are referred to as *Shortia rotundifolia* collectively.

Shortia rotundifolia is in general appearance much like a smaller *S. uniflora;* the flower is a nodding one, greenish white (infrequently blush pink) with nearly entire petal margins. The unique absence of staminodes obviously sets it quite apart from other shortias and from schizocodon. Hayata also noted the sessile anthers and undivided style as distinctive. These points would of course define the genus *Shortiopsis* should it ever be recognized.



Shortia rotundifolia in National Taiwan University Herbarium

It has been found on rocks, among mosses, under trees, on the forest floor and on steep and rocky hillsides, apparently always associated with conifers. From the very extensive collections it would seem that it must constitute a prominent element of the flora of its range, and certainly it would be endangered by logging operations. Almost nothing is known of it outside that herbarium. To the Japanese who found it, it is known as "Randai iwa utiwa". We were invited to a few pieces of the unmounted material on our return to the university. There were both large and small forms represented amongst these, although the filed specimens demonstrated those from higher elevations, consequently smaller, to be considered as *S. transalpina.*

We have just come onto a single

* At least one more is known, the Himalayan *S. sinensis* Hemsley.

reference to this Taiwan plant in the western literature. Dr. Hui-Lin Li writing in *Rhodora* 45.537 (1943) expressed his concurrence in considering it a species of *Shortia*, although he admitted to having known it only from photographs and descriptions.

Any keen plantsman traveling to Taiwan should make the special effort to visit the village of Alishan. It is famous for an illusion known as the Sea of Clouds. When the western lowlands are blanketed in dense overcast as happens for a part of almost every day, one may experience that sense of isolation as if viewing it from an island, the mountaintop surrounded by bluest water bathed in sunshine. Should he find himself so isolated, he should take the early morning work train to the ridges closer to Yushan and have the satisfaction of finding the Taiwan Shortia for himself . . . just as quickly as he possibly can.

This account might be considered a sequel to a prior discussion of Diapensiaceae, *ARGS Bulletin*, Vol. 29, p. 2.

Ralph Bennett—In Memoriam

In the spring of 1967, we had been less than a year in Falls Church, Virginia and were in the process of building our first rock garden. One pleasant Saturday I received a phone call from a gentleman asking if I belonged to the American Rock Garden Society and if I had a rock garden. The answer being yes to both he told me who he was and asked if he might see my garden. And that was how I met Ralph and Annie Bennett.

Less than a half hour later he was observing my construction efforts with the kindly compassion that the professional bestows upon the beginning amateur. Observing that I was where he had been thirty years earlier, he asked me if my wife, Lois, and I and our two children would like to see his rock garden in nearby Arlington. For those of you who have seen that garden, you can understand the charm it held for two small children, not to mention their father. A maze of sunken paths, steep screes, shrubs and trees in a naturalistic setting all lent an air of enchantment. I came home with two boxes of plants.

Over the ensuing years I learned much about Ralph. For years he presided over the Potomac Valley Chapter of the ARGS, organized our spring and fall plant exchanges and the winter meeting. He had started a neighborhood garden club in Arlington that had done much to beautify the homes of its members. He was a member of numerous plant societies and was particularly interested in lilies. He spoke to garden clubs throughout the Washington area, looking always for converts to that gentle art.

I believe his greatest pride and sense of achievement came as an organizer of the American Penstemon Society. For years he printed the annual report on his own mimeograph machine at no little cost of time and effort.

A few years ago, he stepped down as the leader of the Potomac Chapter to be replaced by Jim Minogue. And then because he and Annie were both in their eighties, they sold their enchanted garden and the home he built and moved to Florida near two of their children. He and Annie did get back to Virginia on two

occasions. Ralph true to form had taken up his lawn and transformed the grounds into a tropical garden — and he had slides to prove it.

I know that his many, many friends will miss him, but I suspect, like me, when they look around their gardens they will find much to remind them of him for he was a generous giver of plants. With me it is *Penstemon smallii*, now on its own and doing well.

Our sincerest condolences go to Annie, his life mate for over half a century and to his children. However, I remember him with gladness for he touched many lives with his zeal, kindness and generosity.

• • • •

Ralph Bennett died at his retirement home in Florida on May 1, 1979 when in his late eighties. The above tribute by Donald Humphrey of Falls Church, Virginia tells much about the kind of man he was — a dedicated and generous plantsman. The following excerpt from a letter written to a friend by his daughter, Margaret Curtis, shortly after his death, tells how deeply entrenched was his love of rock gardening.

"I think you know of how interested Dad always was in rock gardens and probably have been to visit the large one in Arlington which he built and which covered an acre of ground. It was beautiful in the spring when it was in bloom. He moved to Florida in September of 1975 and purchased a small home and, since he loved rock gardens so much, invested in a ton of rock in order to build a small rock garden in his back yard. Here in Florida they sell rock for five cents a pound or eighty-five dollars a ton and thus it is a scarce item. He planted many plants in his small rock garden here. They are perennial and have seeded themselves so that there will be bloom in his garden for many years yet to come. At present it is in full bloom and just beautiful."

Eunomia Oppositifolia

Nothing much is ever heard of this little crucifer, a true alpine from the mountain regions of Lebanon and neighboring countries. Even the text books are rather vague about it. Nor is it seen in many gardens, though it is easy enough to grow and a real gem.

It is a small shrublet, only an inch or so high. From a woody base twigs branch out in all directions with fleshy little, round, gray-green leaves, making a compact mat that spreads only moderately. In early April the four-petalled flowers of light lavender cover the plant. The combination of gray leaves and lavender flowers makes a charming picture each spring.

Here in Connecticut it is completely hardy. Like most plants of Mediterranean regions, it requires full sun and good drainage. It makes little seed but is easily propagated from summer cuttings.

—John P. Osborne, Westport, Connecticut

Never Use A Rock If You Can Help It

GEORGE SCHENK
Kirkland, Washington

Scouting about, I have found natural stone used to good effect in the garden in an amazing variety of ways: The natural outcrop, a treasure that comes to few gardeners, embellished with a little soil in the seams and saddles and planted with rare or common things; rocks artfully placed in a garden to suggest natural outcropping stone; field stones casually arranged, the glacial rollers fussed with only slightly, each lying almost as the gardener tossed it on the gorund.

On occasion rocks in no arrangement whatever may be very effective, as when riprap is dumped from trucks to cover an extensive embankment and planted with Broom and other big tough rock plants wherever crowbar and shovel can work a plant into the ground. The eye will find its own compositions in any such stonefall, especially if the rocks are of various sizes.

Rocks may also be used to good effect as plant-enriched architecture. A dry stone wall, for example, planted with such immortals as Mother-of-Thyme, Basket-of-Gold, and Cheddar Pink can be a piece of folk art if very neatly constructed and cared for. Then there are stones used as paving inviting to the feet, or conversely, rocks as paving politely discouraging to the feet (no short cuts, please) with a few rosettes, perhaps of mullein or of some finer leaved plant between the rocks.

Natural stone can be well used as sculpture, but it requires a poetic bulldozer operator (a rare bird, indeed) to tip a glacial monolith on end and grade the soil comfortably about it. More often, such great stones, when encountered in the process of grading, end up pushed over a bank.

But there are also many ways of using natural stone to *no* advantage in the garden.

There is a Northwest kitsch classic: at least ten thousand gardens in the Seattle area display collections of blocky "mountain rock" trucked from talus slides in the Cascades and deposited in clots resembling nothing so much, to my eye at least, as canine scats mineralized and of colossal size. Such stuff is worthless for the romantic landscape uses to which it is usually put. True, there *are* a few good rocks, even magnifcent rocks, in this geological subspecies but finesse in selecting these few is not to be hired. To get the best rocks one must go to the mountains, scramble over rock slides and search out the singular organic shape amidst countless diced and lifeless units. Unselected stones brought in as an eight or ten stone load and costing probably fifty dollars each installed is throwing away money better used for plants. Never use a rock if you can help it.

Furthermore — as long as I'm being insufferable — never use blocky stone in hope of naturalistic effect. Blocks will stack up to nothing more than a parody of an outcrop, but this same, routine blocky granite can make a fine dry stone wall.

Rocks usually only add confusion to the already confused facade of bad architecture or non-architecture. Farrer's famous advice about locating rock gardens out of sight of all buildings seems

to me as valid in the event of contemporary trash-buildings as it was in the case of the heavy Edwardian architecture of his era. However, in the Pacific Northwest many of our later 20th Century houses, particularly those utilizing stained wood, take beautifully to a rock garden as close as can be to walls and windows.

We do much visual gardening, even in gardens into which we are never invited. We walk by, keeping to the sidewalk; we look in; we care about what we see; in seeing, sometimes we suffer — rather often we suffer. For example: we may very well have in our care one hundred thousand completely unnecessary stone retaining walls or wall-lets — stone retaining that retains nothing, but annoys the peaceful progress of eyes and feet. One can almost hear the curses heaped on such rows of stones over the years by gardeners plodding behind lawn mowers. In most cases gentle grades of stable soil should be sloped instead of being chopped into upper and lower levels.

And finally, and eternally, there is the Date-Nut Bar Rockery with its inevitable wrappings of concrete. There must be millions of these the world over, constructed of rocks too much the same size, rocks too regularly placed, rocks the wrong answer to begin with.

Never use a rock if you can help it.

The strength of our compositions of rocks and plants comes from our analysis of natural stonescapes. I can't conceive of anyone constructing a plausible rock garden without having been psychically knocked out of one's shoes at some time, probably many times, by the hallelujah majesty of stonework in nature.

Good rock gardeners are superb tourists, tourists that is, who see more in a mile, more in an inch than the average traveler. We are what I call trailside types, rather than trail-marchers. While the more athletic marchers pass us by — their eyes on the dirt track, their minds on some mystic goal (Lake Divine or Pillar Rock) — here we are stopping at trailside to take mental pictures of the way the world fits together. Here, now, is the Hairstreak Butterfly irritably probing an alpine daisy (a slow-yielding well), the flower clinging in thrilling suspense to its cleft in the cliff, the cliff cascading mightily from the sky down to us and on down below absorbed in turf and forest.

Rock gardening is based equally on such close-ups and on such grand views. One must be a constant student of rocks and plants in all places: in the mountains, at the beach, in the desert, along the streambed, and even in the pasture; for if rocks are here, here too are dutiful rock gardeners: horses and sheep, deer and rabbits, who keep the herbage nicely adpressed and neatly edged about the rocks, making meadow grasses, dandelions, bull clover, and plantains artful rock plants for the moment. I'm smiling quite seriously as I write this. This pasture with its haphazard, yet orderly, rocks and its buttoned-down, yet blended plants is a great teacher of rock gardening.

Not every wild landscape of rocks and plants is pretty, however. Some are tumultuous and disturbing, yet even these hectic landscapes reveal the balance required for the rock gardener's art; we must work with a sense of the fierce and of the gentle.

Three words have just come to the fore in my mind unbidden. I am suspicious of them for their jingly sound as a trio but they won't go away. The words are *Power*, and *Bower*, and *Flower:* for me, these three words ring the garden values of all natural

landscape.

A considerable amount of the Power of the stony world transplants with surprising ease to the rock garden when we develop that connoisseurship of rocks which rock gardeners sum up in saying simply, "That's a good stone", meaning this is certainly no broken or newly laid egg of a rock, but shows goodly age of surface, warm tone, and a lively shape. As a piece of stonecraft the rock garden can't be much better than its stones, each individually weathered, warm, and lively. The Bower in nature — to return in search of our second value — is that place of environmental wholeness, surround, and intimacy which compels us to stay: this is the place to be. A garden is a garden only when it enfolds the gardener in such a place. Finally, the Flower is the detail in nature that entertains; each flower is as something to read, and I know rock gardeners to be insatiable readers of nature. In plants we read flowers, leaves, roots and all; stone surfaces we read as a good mystery. The rock garden provides more to read than any other garden form, which is to me the reason for its being.

High sounding stuff. I wonder now, how is it possible to be a bad stylist in rock gardening when all about us there is such an exemplary world free for the looking? And yet even the most faithful observer of wild rock gardens can go sadly astray when trying to translate these nature-works into a natural appearing, home-made rock garden. And in naturalistic garden composition a near miss ranks with false brickwork or plastic daffodils. What has gone wrong? Some detail can throw a whole concept into disunity: a scree topping unrelated to the rocks it surrounds, the stones themselves too regular in outline and set, like building blocks, in strata lines too monotonously regular, a magnificent rock inappropriately pedestalled as a lone menhir at the summit of the garden, a curbing of bricks. Anyone of these or several in combination may destroy the unity of the garden and thus destroy the natural effect sought by the gardener.

Brick curbing, suitable as it may be in other garden contexts detracts from the value of stones — and vice-versa. Brick, if it must be used, should at least be covered with plants — a single sort for peaceability: thyme would serve well. Or, the rock garden might feature bricks — might use bricks entirely instead of stones, grouping them from place to place on the side of a hillock as low fragments of brick walls, suggesting ruins nearly submerged by accumulated soil, suggesting simultaneously outcrops of stone. The latter would be a far abstraction of a natural outcrop but the mind would make the merger. Having gone this far, would one dare use crushed brick as a scree topping? I believe I would. Why not?'

If any of my readers have gone green and queasy, I'm sorry. But I won't retract. In rock gardening one must, I believe, either recreate free-form nature meticulously or forget nature almost entirely and frame one's beds with straight lines and milled or manufactured materials. Imitating nature badly is the only crime.

And yet the classic rock garden designed in admiration of wilderness, its mazy paths and well-stocked shelves adding up to a library of sensual delight, its cliffs not tall but noble, its stones crusty with aeons of sun and wind, its joints so cunning an Inca might pat the gardener on the shoulder, and even a Rustyback Fern will believe in you — who does not rejoice in this antique, this juicily ro-

mantic art and craft? — When it succeeds.

But — oh! — the cost. I have found myself spending an entire day arranging no more than three to five stones, taking each stone out of the ground, lifting each stone off the ground — twenty, thirty, forty times; making countless little adjustments of closeness, of angle, of height; then to bed at night to be a captive audience before my own mental movies of stones — figments of an ossifying brain — conjoining and separating in a kind of hefty ballet. And that's not the end of it. I have got up the morning after, twenty years older, probably as stiff as rigor mortis; I have gone outside to examine my effort of the day before and, in the merciless morning light of self-criticism, I have found the whole business to be embarrassingly bad and demanding to be done over.

I assume that each of us who arranges stones creditably enough for our friends to give our work an appreciative nod goes through a similar trial. Therefore I advise anyone who is unprepared to wrestle mightily with stones to forego any attempt to arrange them into fancy work such as outcroppings or ravines. There is no honor in naturalistic stone composition for anyone but the zealot, the tomfool artist. There is, however, dignity for us all — and even some free and easy fun — in using a stone as a stone, unattached, or only very casually linked up with others, if at all. This work is related to the natural scatter of stones in pastures, and to the gardener's scattered handful of bulbs in drift planting.

But there is an epilogue to these garden vignettes so artfully and arduously constructed. Some will be revised, uprooted to give place for further experiments on the same piece of ground. Others will be torn up as too large and costly of maintenance. And with most the growth of plants will revise the original construction beyond recognition or obliterate it cleanly out of sight. Yet the early stages of nature's commentary on one's work is eagerly awaited by the gardener. Now comes the greening of the blanks, the softening of outlines and mistakes; the gardener grows proud and invites garden visitors. There is, however, a stage beyond, and a stage beyond the beyond. There is, for example, the mystery of the disappearing stone. Who would suspect perfectly well-behaved rock plants (as we set the bounds of behavior in saxatile species) of being secret octopuses of stones capable of flowing over and consuming (for all visible purposes) a thousand-pounder in no time, in a decade or less? Moss will do in the grandest stonework even more speedily in a moist shady garden. Rocks may be retrievable but the plant community is irreversibly alive and of its own mind and one may end up with rock plants without a rock in sight, and none needed.

"Never use . . ." but you know my refrain.

Do I mourn my losses? Not much. In rock gardening there is a perfect excuse for starting over: most rock plants are pioneers in nature. They like new soil, a freshly made bed. Now that I think of it I am only the humble chamberlain of the rock garden. I have chosen my service with a free mind, or perhaps with cultivated delirium, and I suppose I'll never give up until it is absolutely time.

This article is a verbal sketch of a slide essay presented at the Study Weekend-West in 1978. — Ed.

GENTIANS

by Mary Bartlett. 1976 (second edition) Blandford Press, London, England. Available in USA through Sterling Publishing Co., New York, N.Y. $6.95.

The purpose of this book is "to remove some of the confusion and misunderstanding which surrounds the subject and culture of gentians, and to offer a more comprehensive guide to those gardeners who . . . "are anxious to know more about them." *Gentians* contains chapters on gentian cultivation, gentian propagation, and diseases and pests of gentians. A long chapter devoted to descriptions of about 70 species includes a special but brief section on South American and New Guinean gentians. A chapter on gentian hybrids describes 32 kinds and offers some guidance to hybridizers along with an interesting chart tracing relationships of Asiatic hybrids to their parent species. A short chapter on gentianellas emphasizes that the genus *Gentianella* is quite distinct from the genus *Gentiana*. The name is inapplicable to the garden *Gentiana acaulis*, Farrer to the contrary. There is also a chapter on annuals and a table of species which summarizes characteristics and cultural conditions for 133 species. Rounding out this book are the classical sectional classification of Kusnezow and the contemporary sectional classification of Pringle; a list of alpine garden societies and nurseries from which seed and information are available; and an excellent specialist bibliography on gentians.

Mary Bartlett's *Gentians* is a very useful book for the amateur grower. Many of the plant descriptions and suggestions for cultivation have the quiet authority of experience. The illustrations are superb — 21 color photographs, 10 black-and-whites, and 32 faithful line drawings to scale by Rosemary Smith. It is good to have it made perfectly clear that the name gentianella is reserved for a genus other than *Gentiana* (although the plant illustrated on Plate 20 is *Gentianella bulgarica* rather than *Gentiana* as given, p. 147) and it is excellent that attention is paid to the contemporary sectionalization of the genus *Gentiana* by Dr. Pringle. It brings to mind that taxonomy is very much an alive science, applying contemporary biological and biochemical tools to sort out evolutionary relationships among plants. The emerging and flexible classifications have much potential for change before the beautiful orderliness of nature finally emerges.

Mary Bartlett's interest in Japanese gentians is reflected in her choices, excellent cultural instructions, and Japanese common names which are bound to be useful as the catalogues of Japanese alpine plant nurserymen become more widely circulated. Unfor-

tunately some of the best Japanese gentians are annuals. These are not mentioned by Ms. Bartlett, but are, in any case, unlikely to be seen except in Japan.

In general, *Gentians* is a very helpful book to the grower, of convenient and sensible size and scope. David Wilkie's *Gentians*, edition of 1950, was reprinted in this country by Theophrastus Publishers in 1977. It is more encyclopedic (146 detailed descriptions, many illustrated, and over 600 species summarized in tabular form), and is essential to the amateur specialist. Mary Bartlett's book, on the other hand, has the real "flavor of gentians" (the title of her first chapter) and a strong practical outlook, which recommend it to American alpine gardeners who want to keep from feeling blue about gentians.

—Howard Mason, Portland, Oregon

Books For Loan

Members are urged to make use of the ARGS-PHS Library Service. The address is on the inside back cover of the Bulletin. Available from Your ARGS Store for no cost is the Library Catalog.

Several new books have recently been received by the Library and are now available on loan:

Asiatic Primulas — A Gardeners Guide by Roy Green, put out in 1976 by the Alpine Garden Society. This can be purchased from the AGS but those who wish to examine it before purchase can borrow it from the Library Service. It is a hardback book of 163 pages with 24 illustrations and 27 photographs of Asiatic primulas. It is another excellent book from our sister organization.

Wild Shrubs — Finding and Growing Your Own by Joy Spurr. Published in 1978 by Pacific Search Press, this is a small soft cover book of 96 pages and describes 40 shrubs native to the Pacific Northwest suitable for the garden. Each shrub is depicted with line drawings showing the whole shrub, its foliage, and bloom. This is accompanied by a brief description of the plant, giving height, blooming and fruiting period and range. Propagation suggestions and description of the plant's behavior when moved into cultivation are also included. This is a very worthwhile book.

Japanese Maples by J. D. Vertrees, reviewed in the Spring, 1979 issue, is also available from the Library Service.

• • • *of Cabbages and Kings* • • •

Almost all organizations find it essential to have some method of communicating with its members. When the American Rock Garden Society was organized in New York City on March 21, 1934, Dorothy Ebel Hansell was named Secretary and, in addition, the Editor of the Society's official organ. This consisted, until 1943, of a few pages in *Gardener's Chronicle*, a publication founded by Mrs. Hansell's father, of which she was editor. These columns, giving news of the Society's activities, along with brief articles on rock gardening, were supplemented for three years (1939-1941) by Year Books and loose-leaf folded sheets known as "Saxiflora". Sixteen of these leaflets,

which contained a brief description of a specific rock garden plant illustrated with a line drawing, were sent to the members of the Society.

In 1943 Mrs. Hansell disposed of the family interest in *Gardener's Chronicle* and the ARGS plunged into its own publication, the *Bulletin of the American Rock Garden Society* under the editorship of Dr. Edgar T. Wherry.

For many years, under various editors, the *Bulletin* was the sole publication of ARGS. It came out every two months. Its issues during its first years were fairly slender, containing as they did only sixteen pages. Though these contained illustrated articles about rock gardening and rock garden plants ("Saxiflora" was one of the features) many of the pages were taken up by news of the Society's activities, both national and regional, including the reports of the officers, the membership list and the seed list. In 1952 the *Bulletin* became a quarterly rather than a bi-monthly publication, each issue containing from twenty to thirty-two pages. The content remained about the same, however, though "Saxiflora" was eventually discontinued (thirty-five were published in all) and the seed and membership lists were no longer included in the *Bulletin's* pages, but were printed separately, but lists of new members and the activities of the national organization and the seven regions continued to be reported in considerable detail.

It became, in the 1960's, increasingly evident, as the Society grew, that these features were taking up more than their alloted space in the *Bulletin* despite an increase in the maximum number of pages to forty. Members were complaining that they wanted to read less about people and meetings and more about the real business of the Society: rock gardening and rock plants. It was therefore decided in 1966 to remove from the *Bulletin* as much of the organization's business news as possible and relegate this to a separate newsletter to be included with the *Bulletin* mailing. This had several advantages. Not only did it clear the pages of the *Bulletin* for articles of more lasting interest, but because this newsletter, which was printed by offset from typewritten copy, had a more flexible deadline than the *Bulletin* itself, late news of immediate vital interest could reach the members more quickly.

To relieve the Editor of the necessity of handling two separate publications with differing deadlines, and because the Secretary already had his hands full and most of the business of the Society arrives eventually on the President's desk, the production of this newsletter, y-clept the "Bulletin Board" devolved upon him. Though its preparation is an additional and, I am certain, at times onerous burden upon the President, it does give him an opportunity to communicate personally with the members. In its pages are also to be found such things as the report of the Annual Meeting, the Treasurer's Report, the announcement of rock garden exhibits, meetings and conferences of national interest, the reports of Chapter activities and changes in their officers, the list of new members and notice of the demise of rock gardening friends. It is in the "Bulletin Board" that the activities of the Administrative Committee and the national officers are reported, the problems besetting the Society are aired, and new programs presented. It is here that announcements and information of immediate interest are brought to the attention of the members for consideration and action. The "Bulletin Board" has become the newspaper, the telephone exchange and the nerve center of the Society.

The Bulletin is, we hope, for your pleasure and information and may be perused at leisure and even filed for future reference. The "Bulletin Board" is of immediate concern and should be read as soon as received and, when necessary, acted upon.

Report on Animal Repellents

Herewith a brief note on the various deer repellents suggested last fall and tried with varied success. In our garden in the northwestern corner of Connecticut, where deer greatly outnumber the human population, the deer had already moved in by August and were sampling the azaleas and rhododendrons, comparative shopping, as it were, for their winter fare. One hundred and fifty nylon mesh bags stuffed with hair from the local hairdressers, were scattered throughout the approximately seven acres. These were attached to those shrubs that the deer had found particularly choice the previous winter, one to a shrub — not nearly enough according to the instructions. The deer, however, apparently got the hint and moved out of the garden that night. As reenforcement the entire garden was sprayed in October with the hot pepper sauce-Wiltproof mixture.

We had no snow last winter and the deer did return to forage in the garden by late January, but not nearly as intensively as in past years, and the damage was not as extensive. They did avoid the side of the shrub to which a hairball was attached but chewed on branches a few feet away. Perhaps a second spraying with hot-pepper following the heavy January rains would have helped but unfortunately the temperature never went above 40°F. (the minimum for spraying) the rest of the winter.

On the other hand, friends about a mile down the road attached the suggested three to five hairballs per shrub to the yews and *Euonymus radicans vegetus* around their house. These had been completely denuded the previous winter. Though our friends were away from January 1 to April 1 and their house left vacant, their shrubs came through the winter unscathed. Unfortunately they had forgotten to tie hairballs to the *Iberis sempervirens* and these were eaten to the ground. Draw your own conclusions.

Shirley Klett of Bel Air, Maryland sent in the following note on the subject.

"In connection with the experiments on hot pepper sauce to repel varmints, I should have reported long since that I concocted a mixture of brown laundry soap (shaved, covered with water and heated to a jelly in the old way) and Tabasco Sauce and made it work for woodchucks and rabbits. A thin mixture sprayed on the Chinese peas repelled the woodchuck after one sampling, and a thick paste painted on the stems of blueberry bushes got them through the winter (with a couple of renewals) where rabbits were concerned. I came up with this seven years ago, but whether I read the idea somewhere or thought it up myself, I do not now recall."

Horticultural Archaeology

The following note is from Larry Hochheimer of Norwalk, Connecticut.

Last May my wife, Irene, and I were in Beziers near the Mediterranean in France. In a guide book we noted brief mention of a spot nearby where artifacts of three successive dead civilizations had been discovered and we imposed on our hosts' good nature to drive us the ten miles to Nissan-les-Enserune. We found excavations in progress and a small museum exhibiting

pottery, iron and copper fibulae, figurines and other artifacts of Celtic, Greek and Roman origin, many very beautiful.

The site was elevated above the surrounding flat terrain and had presumably been used as an observation post to watch for approaching ships, possibly carrying raiders. This kind of piracy was indulged in all over the Mediterranean for centuries, being considered a sort of national pastime, baseball not yet having been invented. Bold and blood-thirsty marauders would descend on unsuspecting settlements and carry off the women and other treasures.

We were informed that the discovery had been made in 1915. A passing botanist had noticed a plant he had previously seen only in Greece and on digging around it had come upon ancient shards.

A few weeks ago we wrote the museum asking for the identity of the plant and in return had a charming letter from Le Conservateur L'Abbe Giry. The plant, he wote, was *Anagyris foetida*. Not listed in Bailey, *Hortus II*, or Everett, Irene finally found it in Polunin and Huxley's *Flowers of the Mediterranean*, where it was described as "very poisonous and obnoxious smelling." Thus horticulture went hand in hand with archaeology.

The identity of the identifier remains clothed in mystery, but while we may assume he smelled it, we fervently hope that he did not eat it.

Should I wish to become a botanist (gardener) I must first turn myself into a reptile.

—Samuel Johnson, amended by Francis H. Cabot

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