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9608 26th Ave. N. W., Seattle, Washington 98107

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Albert M. Sutton, Editor

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USE STONE FOR EASY MAINTENANCE

LUCY W. HARRIMAN, *Stamford, Connecticut*

All property owners have maintenance problems. Since most gardeners and rock garden enthusiasts are property owners, the following consideration of garden planning to cut down on the upkeep may prove helpful.

One of the increasingly difficult annoyances facing homeowners today is that of locating adequate help for property maintenance. Workers are available for mowing lawns, but in many cases these men prefer to whizz over a property with a power mower as fast as possible and go on to another place. They do not do any edging, clipping, trimming, weeding or general cleanup, nor will they willingly remove excess garden debris. They even contrive to appear at a property when they know the owner will not be at home so they will not be detained by extra work. In short, they mow the lawn, period. However, with a planned arrangement of your property, and especially by the use of stone, you can minimize these areas of contention. Rather than be worn out and frustrated by chores, you will find you have more time for relaxation and carefree enjoyment.

One of the first necessities for any home is suitable access to it via an entrance walk. It should lead directly to the front door. Have you ever been confused at a strange house and wondered which door you should use? Don't be "modern" and obscure,—be reasonable and kind, and point the way! The walk should have an even surface for safety, and preferably it should be wide enough for two people to walk side by side. Concrete walks are often used; they are functional, uninteresting and both cold and glary. Flagstone or slate set in concrete, however, makes a very satisfactory walk, and so does brick, which may be laid in various attractive patterns or may be combined with flagstone. If you are limited in how much you can spend, a good flagstone walk may be laid on a tamped bed of six to eight inches of bank gravel and sand. Be certain the stone is at least 1 ¾ inches thick to avoid cracking. More informal in character and quite suitable in semi-wooded areas is the walk of local stone laid on gravel or loam. Any solid stone with one flat face may be used as long as it is large enough; avoid using any stone less than eighteen inches square. Native stones are irregular so there will be interesting spaces for mat-forming rock plants. *Arenaria caespitosa nana* (sandwort), the smaller thymes and sedums, *Houstonia caerulea* (bluets), *Antennaria dioica* (everlasting) and *Veronica repens* (speedwell) are a few possible selections.

If the walk approaches the house from the street with lawn on either side of it, there will be no mowing problem and no need for hand clipping. If the walk leads from a driveway or parking area approaching the house in a diagonal direction or parallel to it the bed for foundation planting may be carried out to the walk thereby eliminating the problem of edging. Where a walk adjoins a planting bed it is wise to use low material near it and back for about three feet so that it is easy to see where the walk leads. Never plant anything that may grow out over the walk. Taller shrubs should be kept nearer the house. The selection of shrubs depends on the climatic environment, the style of architecture, spacing and height of windows, the exposure and their own suitability for size, shape and texture. In addition, the owner may have a preference.

An attractive combination for a Connecticut location in a semi-wooded area with northern exposure would be *Pieris japonica* (Japanese andromeda) used with *Kalmia latifolia* (mountain laurel) for the background, groups of low spreading *Pieris floribunda* (mountain andromeda) and *Berberis verriculosa* (warty barberry) with its shiny, holly-like, gray-backed leaves in the middle area, and a low edging of *Pachystima canbyi* (Canby pachystima). The various species of *Pieris* form their buds in the summer and carry them through the winter so they appear to be about to bloom for a long period. The white of the Japanese form is lovely against its bronzy new foliage; the olive-green foliage of the mountain form is an interesting contrast. Barberry blooms with tiny yellow rose-like blossoms all over the plants, and these flowers are later followed by gray-blue fruits. The laurel blooms after the other plants so there is something in bloom over a considerable period.

There is no special upkeep for this type of planting beyond occasional feeding and replenishment of mulch. Pine bark has proven very satisfactory; it is neat and a pleasing color, and it allows water to penetrate to the roots; this cannot be said for peat moss which has a tendency to cake.

On a typical small residential property where space is at a premium and the owner resents giving space for a short driveway, it is possible to provide paved strips of concrete or stone for the car wheels and, instead of an eight to ten foot expanse of driveway surfacing, to plant between the strips. The strips can also serve as walks, and the space between may be planted with grass or ground covers. If the latter is preferred, use something low enough so it will not be damaged by a low car. *Arctostaphylos uva-ursi* (bearberry), *Vinca minor* (myrtle), *Antennaria dioica* (everlasting), *Gaultheria procumbens* (wintergreen), *Potentilla tridentata* (evergreen potentilla), thyme or even some of the ericas would be good choices provided their exposure and soil requirements were satisfied.

Many homes are provided today with terraces for entertaining, relaxation and dining. They are most useful when constructed near the house and readily accessible to it from the living room. Grass terraces are handsome but need constant upkeep and are usually damp when you wish to use them. A combination of grass and patterned areas of stone is attractive but impractical; the grass usually grows over the stones making a restless, lumpy surface. Flagstone, laid on a bed of bank gravel, can be both practical and ornamental. If random rectangular flagstone is set with tight joints, no furniture legs will dig in between the stones and no lady guest will lose a heel. Rock plants grow well in the tiny crevices, but don't overdo it; neat simplicity on a terrace is more restful than too much variety. Occasional smaller stones could be omitted from the terrace to make additional planting areas as long as their locations do not interfere with the usual directions of traffic. However, a better plan is to construct a planting bed, which can be seen from the house, along the outer dimension of the terrace, and use it for

early spring bulbs followed by gay flowers later in the season. If the ground is level this bed could have a hedge as background, preferably evergreen, not over three feet in ultimate height, and slow-growing so it will not need much pruning. If there is a drop in level either a bank or a wall will be needed.

Banks can be attractively converted into rock gardens or planted with interesting low shrubbery, but a planted wall offers permanence, beauty and fascination that cannot be equaled in any other form of gardening. In addition, it provides the rock gardener with an opportunity to grow many more plants and tiny treasures than normally survive in a rock garden, and they are easier to see, protect and enjoy.

A planted wall adjoining a terrace should emphasize the design of the terrace and have well-placed steps through it to the lower level. It may be low to serve as a curbing with plants sprawling over it, or it may be high enough for planting on both sides. There should be a path on the lower level following the line of the wall and near enough to it so you may clip off dead blossoms, smell the fragrance of *Dianthus,* and really see the tiny treasures on the top of the wall at close range. If the path is paved it will retain the plants that like to be at the base. There is very little upkeep; and whatever it is can be done without bending or crouching.

A terrace and wall was recently built for a lady who wanted an "easy upkeep" Vermont garden, and it proved to be just that. The terrace is semicircular in design, repeating the shape of the living room bay window. It is reached directly by a side door near the living room, and by a long, straight paved path from the north end of the house. Water-worn stones were used, some of which were nearly six feet long by three feet wide. They were, of course, slightly irregular, but so beautiful that it was worth adjusting the furniture. There were lovely spaces for plants and enough varieties were used to give continuous interest. A semicircular flower bed repeated the outline of the terrace and is retained by a planted wall which follows the same outlined periphery of the terrace and then goes straight in a northerly direction parallel to the paved straight path.

Steps opposite the side door lead to a path on the lower level close to the wall so all plants can be seen and reached. The path is of tanbark, held in on the outer side by a low stone edging above a bank planted with low-growing cultivated blue berries, very ornamental at all seasons. The bank below the straight part of the path is covered with *Rosa spinosissima altaica* (hybrid Scotch rose from the Altai Mts.). The straight paved path from the north end divides a six foot wide flower border on the house side from a narrow one on the other, which is retained by the straight section of the wall. The lower path turns and joins the paved path by steps at the north end where a flowering crabapple with tiny daffodils and a ground cover of *Vaccinium vitis-idaea minus* (mountain cranberry) mark the entrance. Outside is a lovely mass of *Geranium lancastriense* (prostrate geranium) which blooms all summer and has exquisite foliage. It does not get as loose and open as when grown farther south.

The flower border is edged with *Iris cristata* (crested iris) and the species tulip, *Tulipa dasystemon,* which opens and shuts daily, looks like a little corsage and lasts for weeks. *Puschkinia* and *Chionodoxa* are on either side with a few *Veronica repens* (creeping speedwell). Most of the narrow bed is filled with very dwarf roses that originated on a Vermont mountain top. They make a delightful planting, bloom over a long period, and form bright hips early which are very showy with the fall-colored foliage. Two steps lead down to the terrace level at the end of this walk, and on the bank beside the steps are a pair of *Picea nidiformis* (bird's nest spruce) with *Erica* 'Springwood White' below them. *Cotoneaster apiculata* (cranberry cotoneaster) spreads over the wall

where it joins the higher straight one and is showy with its brilliant berries. Some rock plants used on this property which seem to thrive in the Vermont climate are: *Arenaria caespitosa nana* (sandwort), *Thymus serpyllum albus* (white thyme), *Thymus lanuginosa* (woolly thyme), *Phlox* 'Alexander's Pink' and 'Fairy', *Dianthus caesius* (Cheddar pink) and 'Tiny Rubies', *Campanula poscharskyana* (Serbian bellflower), *Helianthemum* 'Apricot Queen' (sunrose), *Potentilla reptans nana* and *P. tridentata, Houstonia caerulea* (bluets), and *Tunica saxifraga flore plena* (tunicflower).

Planted walls should be battered and each rock should be slanted down toward the back of the wall. Many rock garden books and pamphlets have discussed the construction of walls, so I will not go into detail except to emphasize the importance of the batter (about 3″ in 3′ of height). This slope not only prevents upset from frost action but, in addition, it catches available moisture and directs it toward the plant roots. Many fine plants rot in the rock garden, but they may thrive in a wall where they are safer and easier to enjoy.

Planted walls can be permanent structures though some plants may need to be replaced. A six foot high wall was built in New Hampshire and has survived thirty years of annual winter twenty degrees below zero weather. The only damage, to my knowledge, was when a chipmunk dislodged some chinker stones and soil for a burrow, causing an upper rock to drop out of line. This was not difficult to fix.

Do not forget that some plants prefer the top of a wall, others the face and some the very bottom. I once made a selection of these three types for a wall on an out-of-town property. The plants were delivered "on time" in advance of my arrival and when I went to plant them I discovered that the impatient owners had completed the planting without knowing anything about the plants, not even their names! They had pulled or cut apart most of the plants, making as many as possible, and stuffed them into the wall. All my plans for color and succession of bloom went for naught. The entertaining sequel is that nearly all the plants survived this brutal treatment. They really looked as happy as if I had planted them, though perhaps they were glad I had not. Most of the fall bloomers were in one corner, early ones were in another group; some of the color combinations should be improved, but in spite of it we are content because the plants had survived in that difficult climate.

One further suggestion about walls. Do plan some sort of seat in your wall so you can relax where you can enjoy your plants. It is quite simple to widen a wall where you wish to have a seat. Make the front edge of the seat come on a line with the front of the wall or slightly behind it. Be sure its location is reasonable and seems right in relation to paths, steps and view. One of the purposes of good planning is to free you from too many chores so you will have time to relax and enjoy the results of your efforts.

BOG GARDENING

WALTER F. WINKLER, *Saddle River, N. J.*

Some of the little nooks in our garden attracting more than their share of interest and affording us some of the greatest pleasure and satisfaction are the artificial bogs we have created. Nestled at the foot of a rock garden or set in a spot regarded as difficult because of competition from tree roots, they offer a most pleasing change of pattern.

Here in moist mossy coolness are growing and thriving many of the habenarias, the purple fringed, both large and small, the white fringed and the green fringed, along with arethusas, rattlesnake plantain, both downy and lesser,

pogonias, *Cypripedium reginae,* Spiranthes, the ladies tresses, *Epipactis gigantea* from the West Coast, *Aplectruna hyemale,* and others, all from the wild orchid tribe. Keeping close company are the viny twin flower, *Linnaea borealis* var. *americana*; creeping snowberry, *Chiogenes hispidula*; goldthread, *Coptis trifolia,* and the false violet, *Dalibarda repens*; both American and Japanese shortias, and American cranberry, *Oxycoccus macrocarpus.* Last fall when we were ready to harvest our cranberry crop—one berry—we found that some bird had beaten us to it.

Also enjoying the bog are the flowering wintergreen, *Polygala paucifolia,* and her cousins, *Polygala lutea* and *Polygala cruciata.* The grass of Parnassus, sundews and pitcher plants all add to the charm of their new home in the sunniest of the bogs, while the cardinal flower is something to behold on a hot summer day in its bright scarlet dress accenting the green of the shrubs behind it.

Last, but certainly not least, that little elf of the pine barrens, the pixie moss, seems content to stay for good. In fact, she has become a bit of a gadabout, running here and there, checking on what her neighbors are doing. More recently introduced and not yet established as permanent tenants are *Cypripedium arietinum, C. montanum* and *Calopogon pulchellus.*

The construction of the bog was relatively simple but not without some hard work. The areas for the bogs were excavated about a foot deep. A further excavation was then made in the approximate center of the area large enough and deep enough to accommodate the old tub or half of an old oil tank which was to serve as the reservoir. The purpose of the reservoir is to insure a constant supply of moisture. I sometimes wonder whether the reservoir is really a necessity. The same purpose might be accomplished by excavating the area another six inches or so deeper and skipping the reservoir. Think I will try this the next time.

After the tub was in place, the area was carefully examined and any sharp pebbles, stones or roots were removed. A two inch layer of peat moss was then spread over the ground to protect the plastic which was to follow from being punctured. The whole business, tub and all, was then lined with commercial six mil polyethylene film, ten feet wide laid two or three layers thick. The plastic was rather awkward to handle at times and it took a lot of patience to get it tucked down into the tub and then folded and spread over the rest of the area and up the sides of the excavation. Some back filling or extra digging was required to utilize all the available plastic. Next the lined area was filled with well-soaked peat moss and water was added to help flatten down the stubborn plastic. A drain was arranged at one corner on one of the bogs by letting down the plastic so that no side wall was formed by the plastic at that point. Our more recent bogs have no drains.

The bog was then ready for planting. At this point in the construction we introduced mossy stumps, logs and stones to help naturalize it. The key plants were potted in oversize clay pots in soil, whenever possible, in which they were accustomed to growing. The pots, in turn, were plunged into the peat at various depths depending on our idea of how wet their feet ought to be. If the plant grew naturally in mucky conditions, the pot was plunged up to the rim. Otherwise the pot might wind up just resting on the peat.

After the potted plants were all arranged, the space between the pots was filled in, sometimes with more peat, sometimes with various soil mixtures and sometimes with sand. The nature of the fill depended on the plants to be established in this medium. The basic thought in every case was to recreate for the plant those conditions of soil and moisture best suited for its continued good health and growth. This system permits the use of many soil compositions in varying degrees of alkalinity or acidity in a limited area.

After everything else was in place, we covered most of the surface with sheet moss or other mosses collected from the woods and swamps, choosing the less rampant varieties. Some smaller varieties of ferns were also added at this point. We now had our bog complete with its little hummocks and hollows, green, cool-looking and pleasant to admire. With the aid of a few rain storms, in a short time the bog looked as though it had been established there by nature.

Some readers may be interested in our observations after a little more than three years experience. The bogs heave considerably in winter but this does not seem to affect the plants as everything settles back to normal in the spring. The use of moss appears to check the fungus diseases which have always been a problem to us in growing the wild orchids in the past. Cypripediums and habenarias, growing up through the moss, remain green and lovely all season. Of particular note is the way *Cypripedium reginae* has thrived and increased in size. The selection of mosses is important and any that show signs of becoming too coarse should be quickly eliminated. I am sorry that the names of the mosses are not known. Maybe I can get friend Guy Nearing to identify them sometime.

SEMPERVIVUMS–THE HOUSELEEKS

REX MURFITT, *Cold Spring, N. Y.*

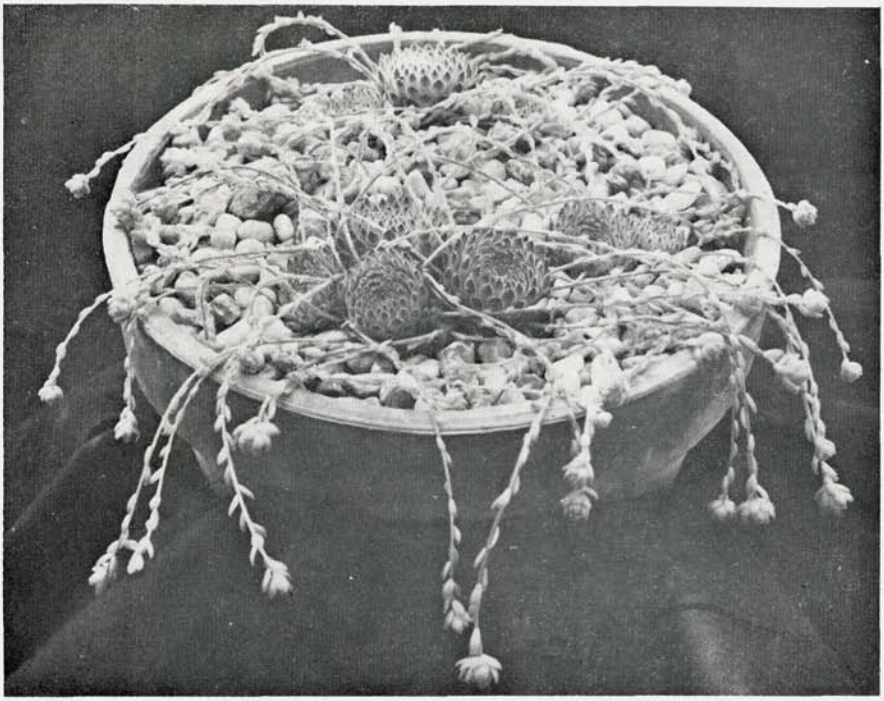
This article is reprinted from *The Garden Journal* of the New York Botanical Garden.

At first thought it would seem pointless to write an article on "hen-and-chickens", it is so easy to pass them by in the garden with a wave of the hand and a general all-encompassing remark. But let us stop a moment and consider this varied and ubiquitous plant in some of its more interesting forms.

The common name houseleek is generally favored over hen-and-chickens to describe this group of plants. They were first illustrated in the works of Greek botanists in the first century A. D. The species usually described was *Sempervivum tectorum,* one of the oldest cultivated by man and the original holder of the name houseleek.* Through the centuries these houseleeks were used on rooftops, since they were believed to be a charm against lightning. Linnaeus' house in Sweden is reputed to have houseleeks flourishing on its roof to this very day. Linnaeus, however, planted the familiar hen-and-chickens. This species, curiously enough, is usually listed in botanical publications as *S. globiferum,* although the discriminating botanist will assert, with justification, that its correct Latin name is *S. soboliferum* Sims (1812). The genus not only reaches back into history, but is fraught with splendid opportunities for horticultural controversy. So there is a story behind the common houseleek growing in the rock garden.

Linnaeus established the genus *Sempervivum* in 1753. At that time there were only six species known to him. Two of them were tender species, the remainder European rosulate plants. Only one has been reclassified in all these years.** To these six original species more were added as the years passed, until over two hundred and fifty binomials were listed in the *Index Kewensis.* Many of these are not true species but hybrids and forms of species described by various botanists through the years. Fortunately for us, Dr. L. Lloyd Praeger in his *An Account of the Sempervivum Group* (1932) reduced this welter to twenty-three species. Since then, many more fascinating sempervivums have been discovered, and thanks to the careful work of such men as Drs. Wale and Giuseppi and Mr. Ingwersen, as well as The Alpine Garden Society publications, they are well described and illustrated.

It is from this confused mass of plants that many of our garden semper-



Sempervivum octopodes

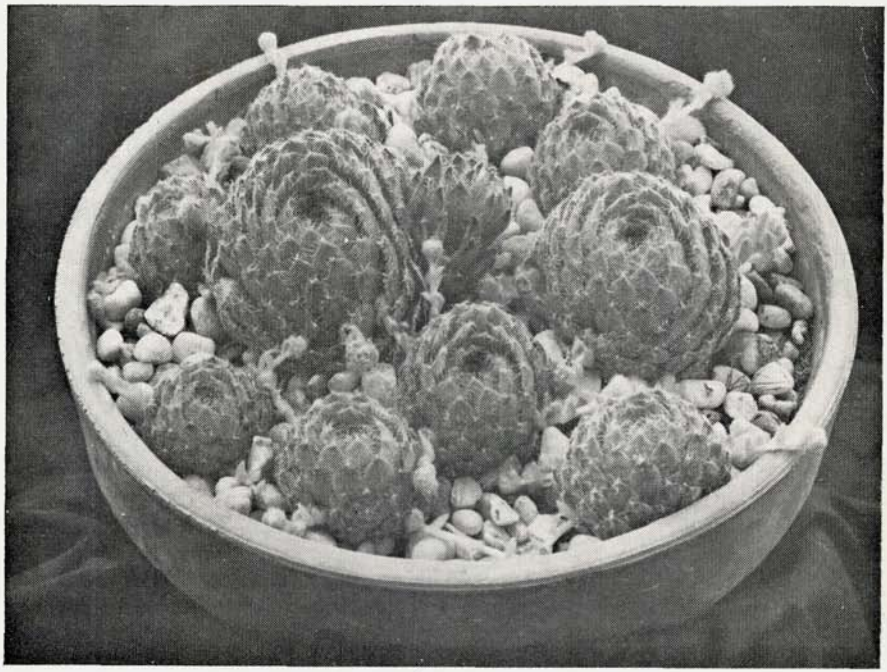
vivums of today have evolved. The situation has been further aggravated by the introduction of seedlings taken from garden-grown specimens. *S. tectorum* is very common in the mountains of central Europe and is such a variable plant (in size, color, and shape) that seventy synonyms have been attributed to it. To illustrate what happens, let us take one of these forms growing in its natural habitat, along with its neighbor species *S. arachnoideum* and *S. montanum*. Some seed is collected and raised in the garden, the resulting plants are allowed to "cross" with other complex sempervivum hybrids already in the garden, and a new variety is created. How can anyone possibly sort them out? (For fun, take a hybrid between these three species from the mountains and try that combination.) Helpfully, some species have distinct characteristics. One of these, the very popular *S. arachnoideum*, the cobweb houseleek, is easily identified by its unique white cobweb hairs reaching from leaf to leaf. This characteristic will be evident in some hybrids, indicating *S. arachnoideum* as at least one parent, though the hairs appear merely as tufts from leaf tips.

A word about the place of the houseleek in the plant world. Many people assume they are "cacti" and doubt their hardiness. This is largely because of the succulent foliage, reminiscent of the ice plant and other such tender plants of the *Crassula, Kalanchoe,* and *Echeveria* genera, which belong to the natural family *Crassulaceae*. The rosulate sempervivums are found in the alpine regions of Europe and Asia Minor. All the European species are quite hardy and easy to grow in our gardens. Some of the more hairy species are injured by too much winter moisture on their foliage, and heat and high humidity will bother some of the rarer species.

The cobweb houseleek, *S. arachnoideum,* is one of the well-known and popular species. No one seems to be able to resist its neat, woolly appearance. The whole rosette is heavily cobwebbed with thin white threads which run from leaf tip to leaf tip. The density of these hairs is affected by the plant's environment. A plant growing in the shade expands its rosette, the leaves will flatten out and become a pallid green, and the arachnoid hairs be less numerous, whereas a plant happily growing in a crevice or on a ledge will form hard clumps of fluffy white balls. Unlike many houseleeks whose flowers are quite dull, *S. arachnoideum* has bright rose-red blooms with wide petals.

Our old friend the hen-and-chicken houseleek, which from now on we shall correctly identify as *S. soboliferum* Sims (1812), is quite distinct with its flattened green rosettes crowded together in clumps and its numerous offshoots borne on threadlike stolons which readily break, shedding the tiny "chicks" to root where they land. The individual rosette leaves are incurved, glabrous (not hairy), ciliate (edged with hair), and the backs usually have a strong mahogany or red-brown tinge. This species may be confused with *S. hirtum,* a close relative, the chief difference being in the size of the rosette; *S. hirtum* is from two to four inches, semi-open, while *S. soboliferum* is usually in the one to one-and-a-half-inch bracket. The leaves of *S. hirtum* also have the red-brown mark on the outside. Like *S. soboliferum* it is yellow-flowered, but it flowers a little more freely.

Sempervivum allionii is another closely related, yellow-flowered species which is sometimes confused with the two previously mentioned plants. It is not so common in our gardens, yet in many ways it is a choicer plant, not so free in shedding its young around to become established among other species. The rosettes form tight globes about one inch across and are bright yellowy green.



Sempervivum ciliosum

If examined closely, the foliage is seen to be finely pubescent, especially on the reverse, and each leaf is red-tipped.

It would take a separate monograph to describe *Sempervivum tectorum* accurately, it is such a polymorphic species and has been awarded so many specific and varietal names. However, it is one of the most used of the sempervivums, and some of its forms are very colorful. It is of obscure origin, yet it has been in cultivation for centuries, as already mentioned. It has smooth, gray-green, purple-tipped rosettes two to three inches across. Horticultural forms and hybrids abound and should be acquired on a personal preference basis rather than on a name, Latin or otherwise.

Sempervivum montanum is quite common in the European mountains, yet the typical plant is hard to find in cultivation as it hybridizes freely. It is fairly distinct with its small, dull green rosettes, one to two inches across; the individual leaves are covered on both surfaces and the edges with fine hair. The stolons that bear the young offsets are leafy and produced freely. There is a form from the southwestern Alps and the Pyrenees called *S. montanum* var. *burnattii* which is quite constant and distinct. It is larger than the type, growing to four inches across, with lighter green rosettes which are much more open and graceful.

Sempervivum marmoreum Grisebach (1843) or *S. schlehani* Schott (1853) or *S. rubicundum* of gardens, under whichever name you choose to grow it, is a highly decorative plant. It resembles *S. tectorum,* but the rosettes are smaller, averaging about three inches, the basal leaves lying flat on the soil. The leaves are green with a well-marked red or rich red-brown apex. These leaf edges are densely ciliate. Again, this species is very variable. Usually the leaf tip margins are green and the apex red-flushed, but this can be reversed. Several distinct forms that can be obtained fairly true to name are listed. One of them is *S. marmoreum rubrifolium ornatum,* a most striking plant, even if experts cannot seem to agree on its origin. Large rosettes of ruby-red with green tips give the impression they are hand-painted. Another attractive variety, with brown leaves that turn red in winter, is *S. marmoreum bruniaefolium.*

Some of the most interesting houseleeks come from the mountains of the Balkan Peninsula. Fortunately, they are quite distinct and in fairly good order. Dr. R. Seligman and W. E. Th. Ingwersen, along with other members of the Alpine Garden Society, were on a collecting expedition in the Balkans, and while climbing Mt. Peristeri in Macedonia, they left the track to collect *Ranunculus* sp. growing nearby. While Mr. Ingwersen collected, Dr. Seligman searched some outcropping rocks and there he found an unusual sempervivum, later named *S. octopodes* Turrill. The small, rounded, semi-open rosettes appear to be delicately perched on the ground. Its leaves are stubby and densely hairy, golden-green with a very dark brown apex. The offsets, given off generously, have large slender stolons which radiate around the plant and are often as long as three inches.

Another similar and unusual Balkan species is *S. ciliosum* Craib. The gray, globular rosette is about one to two inches across, and the leaves, tightly incurved, give the rosette a flattened appearance. Individually the leaves are light green with red on the reverse of the mature ones, but so densely hairy on all surfaces that the hairs interweave around the rosette, producing the gray sheen.

Sempervivum erythraeum Velonovsky forms compact tufts of flat wide-open rosettes. Its short leaves are a delicate grayish red-purple, enhanced by the "bloom", or extremely fine indumentum, a characteristic indicating the plant does not want too much moisture.

No mention of the Balkan sempervivums would be complete without reference to *S. heuffelii* Schott, the most common species of the Balkan Peninsula. This

strong, solid-looking plant has been under cultivation for many years. It resembles *S. tectorum* in coloration, and the color combinations are equally variable. The leaves are broad, coming abruptly to a point. No stolons are produced carrying young offsets; the rosettes themselves divide symmetrically on the same rootstock, producing a solid compact mass.

There are several ways of growing sempervivums — the way the individual feels about them usually determines how it is done. They are very effectively planted in the rock garden, where they flourish and look natural in the crevices. They are also ornamental when planted in dry stone walls. Sempervivums can be used to advantage even in the largest gardens, as they are in the well-known garden of Mr. and Mrs. Leonard Buck in Far Hills, New Jersey. In this garden there are large, sloping rock faces devoid of any soil, and to establish groups of plants on these difficult areas sempervivums were employed. Sheet moss, in large slabs, was placed on the bare rock with the moss side down, and the lower edges (downhill side) were rolled under like a dam, to hold the thin layer of soil that was spread over the moss. The lower edge was then planted with sempervivums which quickly took hold, thus giving the strong plants a stable home into which to root. This method could be used to great advantage in Westchester and Putnam Counties, New York, where many homes have huge granite outcrops. In smaller gardens, a collection of colorful rosettes can be assembled around the patio, or a small rock garden just for sempervivums can be constructed, duplicating their natural abode in the mountains.

The collector of sempervivums prefers to grow many of them in shallow pans in a cool greenhouse or frame, where food and moisture can be rigidly controlled. This is a satisfactory method, if space is available, as the plants can be brought into the house for study and then returned to the greenhouse or frame. They become beautiful specimens when properly cared for. A piece of weathered stone added to the shallow pan creates a miniature rock garden certain to please everyone.

* Tectorum means the roof, and a "leek" was first a type of onion with broad flat leaves—later the name was applied to other plants.

** It should be mentioned here that *S. globiferum* Linn. Species Plantarum 464 (1753) actually contained several other yellow-flowered species.

NOTES FROM THE NORTHWEST

SALLIE D. ALLEN, *Seattle, Wash.*

CONGRATULATIONS MR. PRESIDENT:—Mr. Brian O. Mulligan, Director of the University of Washington Arboretum, a vice president of the American Rock Garden Society, and regional chairman of its Northwestern Unit was elected president of the Western Chapter of the International Shade Tree Conference at the 1963 meeting held in Las Vegas, Nevada, May 13 through 15 and he was recently awarded a Gold Medal by the Massachusetts Horticultural Society for 1962 for his work at the Arboretum of the University of Washington, Seattle, and for other professional accomplishments.

CONFERENCE REPORT:—The Third International Rock Garden Plant Conference held in London and Edinburgh in the spring of 1961 has been described at length elsewhere (ARGS *Bulletin,* Vol. 19, No. 3, pp. 89-95, "The Third International Plant Conference", and Vol. 19, No. 4, pp. 123-125, "Afterthoughts on the Conference", both by C. R. Worth), thus the account herein is a report of how we in Seattle, nearly two years later, enjoyed this most important event of the past decade in rock gardening. This story vividly illus-

trates that intangible, indescribable 'something' that sets these people apart from all others, these alpine enthusiasts, not only in our own country, but in our sister societies in England and Scotland.

Just before the Northwestern officers met in late October 1962 to plan the programs and activities for the following year, one of our members received a letter from Margaret Williams of Reno, Nevada, offering the loan of her own conference slides. This offer gave birth to an idea. Since none of our unit members had been able to attend the conference (and certainly many wanted to) why not bring it to Seattle by way of colored slides? If Mrs. Williams agreed to lend us her slides for this purpose, perhaps other members, especially those in England and Scotland, would also be willing and we could hope to receive enough slides for an instructive and enjoyable program. The idea met with enthusiasm among the officers and the conference report was scheduled for April, 1963.

The letters were written and the response was warm, friendly, and helpful, assuring that slides would be mailed early in March. Where else would one find busy people so willing to take the time to respond to such an appeal? The editor of the *Alpine Garden Society Bulletin*, Mr. Roy Elliott, wrote regretfully that he was unable to help directly, but made copies of our request and passed them along to his AGS friends who, in turn, wrote offering to help. Miss Valerie Finnis of Waterperry Horticultural School in Oxford would supply the desired slides of important personalities in rock gardening who attended the conference; Mr. Raymond Cobb would collect slides among some of the Nottingham members, including Miss E. M. Marshall, Mr. S. R. Piggin and Mrs. Frances Hopkin. Maj. Gen. D. M. Murray-Lyon contacted Mr. Stewart Mitchell of Dundee, Scotland on our behalf and he generously agreed. In March the fascinating packages arrived, not only from those already mentioned, but from Mr. R. E. Saxe of San Francisco, Cal., Mr. Harry Logan of Westport, Conn., and Mr. Sidney Lilley of Sutton Coldfield, England. Others offered slides should they be needed. The number, variety and excellence of those slides received made it necessary to call a second meeting a week following the scheduled program.

The committee which included Mr. and Mrs. Brian O. Mulligan, Dr. and Mrs. David Metheny, Mr. and Mrs. A. K. Free and Mr. and Mrs. Rodney B. Allen spent pleasant hours projecting and sorting slides. Many people helped in various ways, but special note should be made of the invaluable assistance from Mr. Mulligan who can always find time, no matter now busy, to answer innumerable questions, advise and aid in any ARGS projects.

"A Report of the Third International Rock Garden Plant Conference", published jointly by The Alpine Garden Society and The Scottish Rock Garden Club, was used as a guide in organizing Part I of our program on April 11th. It began with a pictorial tour of Mr. C. H. Hammer's garden in Essex, using slides of difficult genera including *Cassiope, Daphne, Celmisia* and *Dionysia,* and a tour of the world-famous Kew Gardens. A fascinating group of plants, predominantly rare Asiatic *Primula* species, were shown under the title of "Plant Introductions", many introduced or reintroduced within the past 10 to 15 years. A tour of Cambridge University Botanic Gardens preceded the representative group taken at the London Show, many of the plants either new to us or known only by reputation. These were followed by views of Windsor Great Park and the Savill gardens of the Queen. The portion on the week in Edinburgh began with slides of Keillour Castle, the interesting home of Maj. and Mrs. Knox Finlay. To illustrate growing alpines without a rock garden, we saw many examples of troughs and alpine houses. The Edinburgh Show displayed still more rarities, beautifully grown and flowered. Part I of our conference report

was concluded with a tour of the lovely Royal Botanic Gardens, Edinburgh, softened and mellowed by age.

The members of the American Rock Garden Society who attended the conference were invited to visit a number of private gardens, thus Part II of our program, given on April 18th, included these gardens as well as nurseries, a group of the RHS Test Gardens at Wisley (too numerous to have been included more correctly in Part I) and famous personalities in rock gardening. The first group of slides was of Bodnant, residence of Lord Aberconway in Wales, Jack Drake's famous nursery in the Scottish Highlands, and an all too brief visit to the garden of Maj. Gen. and Mrs. Murray-Lyon, Perthshire, Scotland. There were many fine views of Broadwell Nursery, the homes and gardens of its owner, Mr. Joe Elliott and his father, Mr. Clarence Elliott.

Mr. Mulligan, formerly assistant director at Wisley, added great interest by narrating the portion of the program on the RHS Test Gardens, providing a more personal touch to our visit to Wisley. We had a glimpse into the charming garden of Mr. and Mrs. Sidney Lilley of Sutton Coldfield, Mr. Will Ingwersen's fascinating nursery in the south of England and finally the beautiful gardens of Abbottswood, the home of Mr. Harry Ferguson. We were intrigued not only by the gardens, the countryside and outstanding plants, but by the old, picturesque homes that gave us such a feeling of the history and romance of the country.

The entire two-part program was concluded by a group of slides of famous personalities in the alpine world, most of them taken with the lovely Waterperry Gardens as background. It seems quite apt that our final view was a little bit of England in the fall, an exquisite swan on a quiet lake surrounded by trees and shrubs that had taken on their autumn coloring. We feel that we have a much more intimate knowledge of Scotland and England, of our friends there who have such talent for growing beautiful and difficult plants. Our sincerest thanks go to them and our ARGS members who so generously shared their memorable experiences with us.

NORTHWEST FLOWER AND GARDEN FESTIVAL:—Frances Kinne Roberson, chairman of the committee responsible for the American Rock Garden Society's contribution to the festival, was asked to describe the resulting exhibit. Her enthusiasm and energy, coupled with an uncanny resourcefulness, was largely responsible for producing a highly artistic rock garden which attracted much attention. Her description follows:

The Northwestern Unit of the American Rock Garden Society was asked by the chairman of the Northwest Flower and Garden Festival (Seattle Center —May 24 to 26) to plant a 200 sq. ft. L-shaped plot adjoining an equal area containing mainly species rhododendrons of the Rhododendron Study Group. We accepted what was a real challenge, since the early flowering rock plants had spent their blooms before the date of the show. Foliage color and texture had to contribute heavily to the general effect. Then, too, it required a lot of small plants to landscape adequately that much show space. The following is a meager description of the material used:

A group of conifers, including some bushy plants of *Taxus canadensis* with their rich green needles, was flanked by lower growing *Ilex crenata* intermixed with *Azalea ledifolia alba.* This was the background for some shade-loving plants which were set on three sides of a small log-backed pool to which led a short mossy path bordered with *Vaccinium vitis-idaea.*

Interest on one side of the path centered in the rosy candelabra of *Primula japonica* which contrasted nicely with the blue-purple, downswept heads of *Primula nutans.* An outstanding specimen of *Gaulthettya wisleyensis* attracted

much attention in this area, as did a mat of *Cornus canadensis* and other ground covers. The taller background shrubs shaded such ferns as *Polystichum andersoni* and *Adiantum pedatum,* while the open foreground suited *Pityrogramma triangularis, Cheilanthes gracillima* and *Phyllitis scolopendrium* in variety.

The other side of the path was enlivened by the yellow and orange tones of *Primula aurantiaca* and *P. cockburniana.* Here a few plants of *Leucothoe populifolia* and some of *Pentapterygium (Agapetes) serpens* neighbored with *Gaultheria adenothrix.* The transition to the sunnier area was marked by a collection of Ketchikan muskeg flora which included Juniperus communis (sibirica) nana.

Next came *Hebe decumbens, H. cupressoides, H. lycopodioides* and *H. pinguifolia,* all of which are from New Zealand. Mats of sedum and sempervivum filled in the foreground. An abrupt wall above these plants and simulating a north face made the ideal spot for *Ramonda myconii* and *R. m. rosea,* two flowering beauties.

The scree which sloped gently in the opposite direction from part of this same wall might have seemed like a display of samples if the individual plants had not been of so much interest either because of rarity or prodigality of bloom. The large pink saucers of *Geranium sanguineum lancastriense* contrasted with the tiny but more numerous rosy blossoms of *Dianthus deltoides. Penstemon fruticosus, P. menziesii* and *P. newberryi* represented their shrubby clan; *Erica cinerea* 'Golden Drop', *Rhododendron ledoides* and *R. radicans* spoke for the heath family.

One rocky arm at the side of the scree was covered by yellow-flowered *Genista pilosa,* flat enough to serve as a foil for small trees such as *Acer campestre, Lithocarpus densiflorus* var. *montanus* and *Pinus strobus nana.* Higher up there were conifers such as *Juniperus chinensis* 'Blaauw's Variety' and a weeping Norway spruce which contributed greatly to the mountain feeling. Most colorful were several plants of *Rhododendron obtusum* crowning the ridge with masses of bloom.

Two large-flowered azaleas were set in the simulated valley along with a sizable plant of *Menziesia lasiophylla* behind which the yellow flowers of *Meconopsis cambrica* lured our eyes.

There were other plants too numerous to mention. Many of these treasures brought visitors literally to their knees in order to see better. This project required considerable cooperative effort on the part of our members but we counted it worth while inasmuch as many people became acquainted with new plant material.

CAN ROCK GARDEN PLANTS BE GROWN IN CALIFORNIA?

OWEN PEARCE, *Orinda, California*

By all accounts, California is a fabulous country! This fact is well-attested to by many an account in both ancient and modern literature; and the lure has brought to our shores hordes of people who have sought and experienced every variant of life and occupation, from the hectically harassed movie director to the retired farmer from Iowa. But for all this varied Valhalla, it must be admitted that a number of desirable elements of life are conspicuous by their absence.

One of these missing features, noticeable to me and others with kindred tastes, is the proper assembly of conditions for the growing of rock garden plants. The climate and soil conditions of the Pacific Northwest are such that a visitor from the San Francisco Bay area is overwhelmed by the apparent ease with which plants are grown, plants which are regarded by us as difficult; and apparently,

the same ease is encountered in the eastern United States; yes, and in England, too. We enthusiasts in the Bay area, therefore, are prone to draw the conclusion that it takes much more knowledge and skill to be able to grow these plants in our area than elsewhere, and that the grower of a successful plant here should take his hat off to nobody in the world.

The above is written, of course, with tongue in cheek; but let us remove the tongue from the cheek and search to see if there is any truth to the statement made. Is it easier to grow good rock garden plants in Portland, or Seattle, or Cleveland or Rochester than it is in San Francisco?

The answer, definitely, is yes. Let us consider a few examples: *Lewisia tweedyi,* for instance; or *Jeffersonia dubia*; or *Kalmiopsis leachiana*; or *Shortia uniflora grandiflora* var. 'Rosea'. I have tried all of them with varying results: the *Jeffersonia dubia,* three times, survived for only short periods, from a couple of weeks to a couple of months; *Kalmiopsis leachiana* lasted for three or four years, but without great growth, although it flowered quite well; *Shortia* lasted for two years, with only one year of blooming—the first. *Lewisia tweedyi,* after two or three unsuccessful attempts, has now developed quite well, as it gave three stalks of blossom last spring, had several offshoots (which I successfully cut off and rooted in August), and still shows good signs of well-being. There may have been more successful attempts with these plants in this area, of which I am not aware; still, the probabilities for success are not good, so such plants are not particularly in demand. Yet they must grow comparatively easily in the enviable areas mentioned, as I have seen some of them, *Lewisia tweedyi* especially, thriving beautifully there. Another example is *Cornus canadensis,* which I saw in Victoria, British Columbia, growing rampantly. But my own experience with it has not been too happy. I had one plant in a pot for four years, which I was proud of, until it suddenly passed out. Others have lingered on pathetically in pots and died immediately when put out into the leaf-moldy humus under the oak trees, which is their natural habitat.* *Sanguinaria canadensis* is another which behaves similarly. It is a delightful, but, as I understand, quite common plant of the eastern woods; the few who coddle it locally (in a pot), crow for a month when any blossoms develop.

Why is it so much easier to care for these plants in other areas? Or, rather, why is it so difficult in ours? Are we stupid and lacking in green thumbness? (Perhaps we are much more capable than our neighbors, since we do occasionally blossom the rare things in spite of the hardships). Or is there something inherent in our Central California climate, or soil, or water, that is a natural deterrent to our efforts? If so, can the difficulties be overcome? And if this can be done, can it be done by the average gardener, or will it remain only for the real student to become proficient enough to enjoy the beauties of the plants which spur us on? Such is my problem in this paper and if I could answer it, there would be no need of writing.

Let us turn first to climatic difficulties. The San Francisco Bay area has a number of widely different climates: from San Francisco's own almost continuous fog through the summer and early fall, and mild winters, to the hot, dry summers (temperature to over 100 degrees) and winters with cold snaps (fortunately comparatively short) with temperatures down to 22 degrees in the lower Peninsula and east of the Berkeley hills. However, all these microclimates conform to a general pattern; that of a seasonal dry period alternating with the wet season. From the middle of May, usually, until the middle of September or the first of October, there is seldom a drop of rain. The average seasonal rainfall varies from twenty inches in San Francisco to some thirty inches in the outlying districts. North of Mt. Tamalpais, however, not more than fifteen or twenty miles from

San Francisco, local areas get as much as sixty inches per year.

Most of our water comes from dams located in the High Sierra, about a hundred miles to the east. These dams receive the runoff from the melting snow, and the water originally has a slight acidic reaction. It is treated with chlorine before reaching our gardens. In some areas, water is pumped from underground sources and this is definitely alkaline. Soils vary, of course, much of it being a heavy, black clay, called abode, very hard in summer and very sticky in winter. Other soils consist of decomposed sandstone, and, of course, good loam in many places. There are many outcroppings of sandstone, shale, serpentine, etc., and much of San Francisco is built directly on sand dunes.

Now, are these conditions conducive to the growing of alpine or rock garden plants in general? Are these the natural conditions for alpine plants? Of course, the answer is no, for they are found in areas having severe winter weather of long duration, but with short summers. In our latitude these conditions are found only at high altitudes; since similar species grow under similar conditions in the north and east, but at much lower altitudes, I am led to believe that altitude in itself is not a factor. But the plants do grow where there are long periods of dormancy, buried in darkness under a mantle of insulating snow which keeps the plants free from extremely low temperatures and in a state of complete dryness. And the summers consist of long days, in which a fierce sun beats down through a clear atmosphere, varied with frequent showers and heavy rains.

Do the plants actually demand these conditions, or will they adapt themselves to the great differences in changed locations? I believe that most plant life has such a strong will to live that nearly all plants will make adjustments, a fact which has resulted in the evolution of all life to the present forms. However, in making such a drastic change in the plant's environment, the grower, himself, has to help by compensating for some of the requirements which are lacking. This takes special knowledge, observation and experience; and perhaps for this reason those enthusiasts in this region should be given special kudos for their successes. Ahem!

How can we accomplish this compensation? The method of obtaining the plants means a great deal in the answer to this question. There are three methods of acquisition: by bodily transposition; by seed germination or by asexual propagation. The first method is much more satisfactory and speedy if the plants are available, as the use of plastic bags eliminates all problems of drying out. Taprooted plants are the exception unless they are obtained when quite small, before the tap has gone deep. But even after successful transplanting, plants do not behave as they do in their original home. I have potted *Primula suffrutescens* so that it lived for three or four years, but would it blossom? Never! Friends have tried it also, with similar results. I am now raising a number of plants from seed and I have placed two plants in pots, covered them with polyethylene bags and stored them in the refrigerator for a period of three months. This procedure will provide dormancy and darkness, and I am very interested in the results.

The second method of getting plants, by seed, provides an interesting possibility, in that a growing plant may more readily adapt itself to new conditions than one which, as an adult, has been removed from its original habitat. This is what I am doing with the *Primula* mentoned above. As a further method of compensating for its relocation, I am keeping two plants in my covered hotbed, where the winter watering, during the normal dormant season, is being kept at a minimum. I hope this, too, may show interesting results.

Asexual propagation is practical with many of the shrubby types of plants; but again, if the roots strike, the problem of proper care to conform with the plants requirements become paramount.

Although it is not a rock garden shrub, *Kalmia latifolia* and other shrubs from the same habitat present a similar problem to us. In the mountains of the eastern part of the United States, I am told, *Kalmia latifolia* grows up to fifteen feet high and is smothered with blossoms in the springtime. In the Bay area, it is not often grown, because it seldom becomes more than three or four feet high, while the blooms are comparatively scarce. Why should this be? Is it a question of dormancy, or humidity?

Perhaps these questions, of a local nature, are more or less out of place in a *Bulletin* of national circulation. Perhaps rock plant lovers in other areas have similar problems, and think that the grass is greener on our side of the fence; and therefore my problems may not be local. Perhaps my questions might inspire the 'wiseacres' in other areas to rise in self-defense against lightly veiled inferences that the rock gardeners in the San Francisco region have the greenest thumbs. I, for one, would welcome such a discussion in the *Bulletin,* and I am sure that many members of the Society could gain much knowledge from experiences noted by others. Anyway, it is fun to air my problems; meantime I am not discouraged, and I am sure that next year my garden is going to have a breath-taking display of *Gentiana acaulis, Ranunculus glacialis, Loiseleuria procumbens* and *Kalmia latifolia*!

*Editor's note. *Cornus canadensis* in the Pacific Northwest is found growing in mountain forests, mostly in the Canadian zone, where the trees are coniferous and the soil is acid.

SEPTEMBER FROST

RUTH E. HUNKINS, *Plaistow, N. H.*

Last night the feel of frost was in the air, light perhaps, but the feel was there.

True to the promise, made to myself in those last moments before slumber came, I rose, peeked out of the window at the whitened roof corner which always foretold the first and last attacks of frost.

Ah! Yes! The creeping dawn disclosed the dreaded signs.

Quickly donning overalls and sweater, gathering rubbers and woolen gloves while passing through the shed, I read the thermometer. Just under 30 degrees!

Already I could see the frost feathers blanketing the garden and the lawn.

The hose, coiled ready for my guiding hand, sprang into spray and patterned all the phlox and marigolds with beads of water, freezing as it fell.

In passing, all the chrysanthemums were drenched and the leaves of the peach tree crackled at the touch. "Mums" can "take it", but most growing things are but waiting an excuse for their long winter nap.

However, cornflowers and zinnias *must* last for just a short while longer and after this first onslaught, Indian summer will carry us into October.

How dark the colors look! Are the dark brown and henna blooms the same that glowed but yesterday with orange-yellow velvet?

Over the hill, in the growing light, the outline of the one autumn-dressed maple takes form, and mist is rising, like wisps of smoke where the brook flows over the dam.

There is no breeze, and the stillness of the rock garden, with its stiff little clumps of blue-green and chartreuse finds me walking on tiptoe, though I know not why.

Heralds of the rising sun are telling me to hurry, hurry! Spread the spray! False dew must fall, before the sun's first ray.

The wandering hose makes patterns on the frosty lawn, and each asparagus frond is a fairy Christmas tree, hung with tiny crystal balls.

The light is growing, and through the spray my own private rainbow springs to sight. The pot of gold? Each blossom for a few more precious days.

Rays of sunshine are loosening the frozen drops and one more touch of misty spray sends them pattering down.

Drooping, weighted branches lift once more in swift release!

I sigh, relax, and with a final reverent glance, turn toward my warm kitchen where the teakettle is whistling a welcome.

THE MINIATURE LANDSCAPES OF JAPAN – PART II

STEPHEN AND SUZANNE JAMES, *Monterey, California*

BONSEKI (TRAY STONE) (Fig. III)

Bonseki dates from the late sixth century when unusual stones were first brought to Japan. These stones, depending on their shape, would suggest to their viewers pictures of mountains, islands or waterfalls.

Rocks. In bonseki, rocks are always used in their natural state as artificially shaped rocks are looked upon with a certain amount of disdain by the bonseki artist. The bottom of the rock, however, is cut off to make it level, and covered with silk so that it will not scratch the tray.

The three main schools of bonseki are determined by the color of the rocks and sands used; one school uses only black rocks and white sand, another uses colored rocks and colored sand, and the third uses a mixture of both. Black rocks are most popular, but other colors are often used to suggest seasonal changes: green for spring, black for summer, reddish stones for autumn and white for winter.

There are a variety of stones used in bonseki. The principal stone is usually seven or eight inches long and four or five inches high. Smaller stones are used for perspective. Each stone has a name just as do those in a full-scale Japanese garden. The auxiliary stone is called soye-ishi; and sute-ishi is a thrownaway stone, and ashirai are the small stones used to add details to the scene.

The Japanese have what may seem to anyone, other than a rock gardener, an inordinate fondness for stone. To them it symbolizes a solid and unchanging reality. Some bonseki stones are so valued that they are considered in the same category as art treasures and have been handed down as a prize inheritance from generation to generation.

Sand. In bonseki, sand is the 'paint' with which the bonseki artist draws his picture on the tray. For this he uses either white sand or a crushed calcareous spar which comes in nine or ten grades, each of which is used for specific reasons: the five coarsest grades are used for the details of the landscape; the intermediate grades are used for making mountains and seashores; the next to the finest grade is used for streams and waves, and the finest for mist, snow or clouds.

Equipment. In addition to the sand and stones, other equipment used in bonseki includes a special chest of drawers for holding the tools and the different grades of sand, and black lacquered wooden trays and boards, ten to sixteen inches long, in oval, rectangular or fan shape.

Special bonseki tools include brushes, feathers, spoons, sieves, chopsticks, cutting dies for making the sun, moons, flowers and birds, and miniature accessories in ivory, silver, bronze and copper.

Seasonal Approach. Since seasons play such a vital part in Japan, the details in

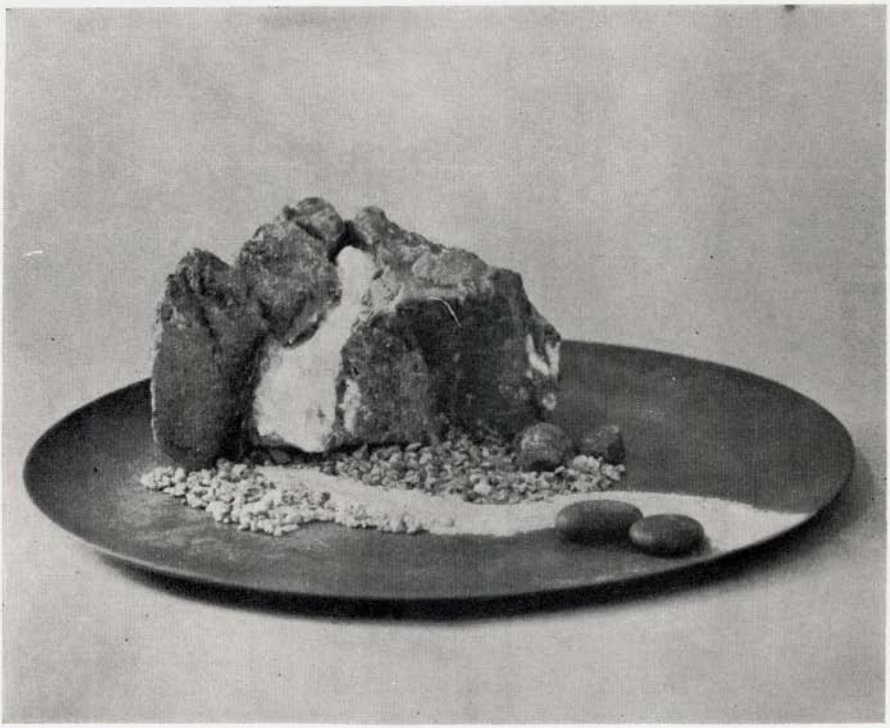


Fig. 3
An American adaptation of a bonseki featuring a bonseki waterfall stone.

bonseki clearly reflect the subtle seasonal differences. We have already mentioned how the color of the stones may represent a certain season. In addition, each season also has its characteristic wave, and even the direction of wind peculiar to the season depicted is indicated. In this respect, it is wise to remember that the front of the principal stone is always considered as facing south.

Kiseki. Kiseki is the name given to rare or strange stones. Many of these stones have their own stands; others are placed on trays with low-growing grass or bamboo.

Sansui-seki. Sansui-seki are landscape stones which depict distant mountains, the coastline, waterfalls or a country scene. These may have their own stand, or they may sometimes be used in low trays with earth and moss and planted with grasses.

Suiseki. Suiseki is another century-old art in which the stone is used to represent an island or a group of islands and with sand or water is used to depict a seascape. Porcelain or bronze trays or dishes are used for containers. With infinite patience, the Japanese water some of these stones so that they will form a thin coating of moss which will suggest forests and meadows to the viewer.

DISPLAY OF MINIATURE GARDENS

The love of beauty is an integral part of the Japanese make-up, and in Japan nature is a daily companion. The Japanese have a special alcove in their homes

where nature is appreciated in the form of flower arrangements, bonsai, bonkei and bonseki. The alcove, called a tokonoma, is a derivation of the Zen chapel, and the one or two objects of beauty placed there are almost objects of worship.

Anyone who has ever seen the tiny potted trees, or the bonkei and bonseki of the Japanese knows full well their inescapable charm. They are truly exquisite miniature masterpieces, and one can simply sit and stare at them for hours. It is very understandable how the Japanese can use them for purposes of contemplation.

This is another Eastern custom that Westerners might well adopt. The Japanese have a saying: "In the home is where true beauty lives." The conscious contemplation of beauty for a few minutes every day would undoubtedly serve as far better relaxation and revitalization than the customary hours of television viewing with its inevitable accompaniment of snacks. And the spiritual or mental refreshment would be infinitely less caloric than potato chips and ale.

WESTERN TRILLIUM MUTATIONS

LEONARD WILEY, *Portland, Oregon*

John C. Lambert wrote me that he had never seen a double form of any of the western trilliums. Mr. Lambert is the author of the fascinating article on mutant trilliums in the January, 1963 *Bulletin*. He also mentioned that some of these mutants revert to type for no apparent reason.

Portland, Oregon, where I make my home, is surrounded on all four sides with *Trillium ovatum*. I have seen many thousands of these springtime beauties in my jaunts through the open forests and meadows over a period of many years. But I have never seen any variants from the type, and it wasn't because I haven't looked. They are simply extremely rare. My friend, Isabelle Gillam of Portland, Oregon, has had them appear spontaneously in her garden from time to time. These mutants always came from plants that had been normal in prior years and in subsequent years reverted to type in every case, the variant lasting in each plant only one year.

The three *T. ovatum* mutation plants that I have in my gardens came from an original wild plant that was found in the Gresham-Sandy area over forty years ago. I obtained these from a man who had nine of them—direct descendents of the original. The three cost me $35.00 worth of work and I was mighty glad to get them. They have upwards of 25 petals each with no stamens or pistil. This type of mutant will not revert to type, the stamens and pistils having become petals. At one time there were at least 30 plants that had been divided from the single original parent. Now there are only seven left—the discoverers are long since dead and thieves have entered the picture. I know of two other of these fixed, many-petaled *T. ovatum* plants and they all came from the same Gresham-Sandy area. These two small towns are within 25 miles of Portland and east of it. Why did they all come from this one general area and not from south, west or north of Portland? Coincidence? Possibly. Ignorance? Are there other discoveries of which I have no knowledge? Mr. Lambert mentions that his *T. grandiflorum* mutants are found only in rocky soil so far as his experience goes. Why? Why? Why? So little is known about these rarities.

There is a clump of about a dozen plants of these beautiful multi-petaled "ovatums" in the University of Washington Arboretum at Seattle. They were

transplanted from Kenmore, near Seattle.

Every year one of the Portland papers reports frequent calls of discoveries of multi-petaled "ovatums". But these are nearly always flowers with an extra petal or two or like those in Mrs. Gillam's garden. The rarest of all of these *T. ovatum* mutations that I have ever heard of was one that had the ordinary single stem with the usual three green leaves. But there were two peduncles, arising from the same position on the stem and each had a single, normal, three-petaled flower. I saw a colored photographic slide of this plant but the owner knew only that it came from somewhere near the general Portland area and there was no way to trace it, nor to tell whether it retained its distinctive beauty or reverted to type like just another of its thousands of sisters.

I have never seen or heard of any mutations of other species of Oregon's trilluims. This may be due to the fact that the other species are too few within the area readily accessible to me, or that they are not numerous enough anywhere within their range for anyone to stumble on the one of untold thousands of common flowers that makes a trip into the wilds a journey that will never be forgotten.

Plants are continually, endlessly trying to become better adapted to their environment. This is in order that they may be better equipped in their battle of survival with other competing species. Ordinarily this adaption is a slow process and covers thousands upon thousands of years. But occasionally Mother Nature produces a change in a hurry—a mutation. Most of these experiments are failures in that they are less able to survive the bitter struggle than their parents.

Such are the multi-petaled trilliums that have lost their powers of sexual reproduction through the transformation of stamens and pistils into petals. This leaves them only the slow and uncertain vegetative reproduction. In the higher forms of plant life this means lingering but certain extinction. But bring them into the protection of your garden and they will return your love with their unique and very rare beauty as long as that protection is there.

WILDERNESS IN THE GREAT SMOKIES

JOHN PARRIS, *Asheville, N. C.*

Reprinted from the *Asheville Citizen* of June 6, 1963, with the permission of the Asheville Citizen-Times Publishing Co., Asheville, N. C.

DEEP CREEK—Beyond the old Bryson place, some six miles above the Deep Creek Campground, lies a jungle where men seldom go. It is Eastern America's last great untamed wilderness—a flower kingdom guarded by trees that were saplings when Columbus sailed westward out of Palos. The existence of this jungle area is known to comparatively few men and all of its mysteries are known to no man.

A father on a melancholy search for God wandered about it with his four small sons for two weeks recently, and through some miracle, managed to survive without food or fire or shelter. In all the Great Smoky Mountains National Park, no place is so wild or so rough.

Sunkata Ridge and Thomas Divide flank it on the east, Noland Divide on the west. Deep Creek knifes through the heart of the jungle. And riding high above, to the northwest and north are Clingman's Dome and Mount Collins. Wisps of fog rise up from coves and low-hanging clouds roll across its ridges following the rains that make these mountains the nation's region of highest precipitation outside the Pacific Northwest. A few trails skirt the wilderness—

none penetrate it. There are gulfs in the jungle where few men have ever been. It is no region for the tenderfoot or the amateur hiker—no place for adventuring alone. Men have been known to disappear in the jungle.

There are laurel hells—a veritable maze of false paths and openings—in which men have been known to wander for days. It was not uncommon before the Smokies became a national park to see notices tacked up in the post office at Bryson City that told of someone lost in the jungle. Of those living, few know it so well as Dr. Kelly Bennett of Bryson City and Tom Alexander of Cataloochee Ranch. "It is rough, tough country." Dr. Bennett says. "Beautiful but frightening. There is a certain awe about it."

Within this jungle there are tulip poplars up to 10 and 12 feet through, their trunks towering like giant columns, with scarcely a noticeable taper 70 to 80 feet to the nearest limb. Spruce trees reach 175 feet and hemlocks—almost 20 feet around—stand sentinel beside the spruce while rhododendron—25 feet tall and gnarled in knots—spread over the face of the jungle. Animals that know not the scent of man play in its grottoes. Trout leap in its azure brooks with absolute freedom, cloistered from the fisherman who seldom comes this way.

The jungle changes colors like a chameleon during seasons. The flowering period is a long one, with sometimes only a month or two separating the late flowers, such as witch hazel, from early bloomers, such as streamside alders. Certain plants that come into flower in early spring at lower altitudes may be found in bloom eight or 10 weeks later along the crest of the range that rises out of the jungle.

Arthur Stupka, the veteran park naturalist and biologist, says there are more than 1,300 kinds of flowering plants, of which 131 represent native trees—a greater number than is to be found in all Europe. Among the nonflowering plants there are about 50 ferns and fern allies, almost 350 mosses and liverworts, 230 lichens—and more than 2,000 fungi.

From the head-springs of the left fork of Deep Creek on Fork Ridge, where the jungle rises to 5,000 feet, down to the Bryson place and the gateway to the wilderness, which is 3,000 feet, there is a change in vegetation comparable to that which would be seen traveling a thousand miles to the north. More than half the woody plants growing in the jungle are northern species of the so-called Canadian zone, which reaches its southernmost extension in the Great Smokies. The open areas on the ridge crests in the wilderness area are known locally as "laurel slicks" or "laurel hells", or technically as "heath balds". From a distance they appear to be smooth, grassy carpets. "They are in reality," Stupka explains, "an almost impenetrable head-high tangle of rhododendron, mountain laurel and other members of the heath family."

April and May is the time of greatest blooming of the wild flowers of the forest floor, such as violets, trilliums and phacelia. Early to mid-June marks the height of bloom of the spectacular Catawba rhododendron of the laurel slicks, with the brilliant flame azalea coming next.

Like the plant life, the animal life is diverse. The jungle has become a sanctuary for more than 50 kinds of fur-bearers, 200 birds, and 80 fishes. Black bears are as prevalent today as when the country was first settled about the Deep Creek area, Stupka believes. And the bear, along with the bobcats, red and gray foxes, ravens, wild turkeys, ruffed grouse, and duck hawks, serve to preserve the wilderness character of the Smokies. Men who have gone into the jungle have told of seeing and hearing the raven—the first creature Noah liberated from the Ark. There is forever the chip-ship-cluck of ground squirrels, the saucy bark of the grays, and the great chirruping among the mountain "boomers". They mock a silence older than Adam.

Cloud shadows troop all day across the wilderness and darken no doorstep, for man never ventured beyond the Bryson place to settle and build. Even the Cherokee Indians steered clear of the jungle. Even on the edge of this wilderness there is a brooding, weary silence. And inside, Dr. Bennett and those who have been there will tell you, there is a heavy stillness that makes men talk in whispers. There are spots in the jungle where the foliage is so thick the sun never shines on the ground.

Night comes there with a startling suddenness, and there is a blackness to it that defies description. And with it, there is the cry of the whippoorwills—"these old hills, these old hills."

INTERCHANGE

Coptis laciniata—Mr. and Mrs. Page Ballard, R.D. 1, Box 3794, Issaquah, Wash., answer the inquiry of Scotland's Maj. Gen. D. M. Murray-Lyon by giving their experience with this plant. *"Coptis laciniata,"* they wrote, "has sulked for us until just recently. We have it planted in a shady woodland where *Cornus canadensis, Vancouveria,* and some of the small ferns have gone rampant in this area. Now, among these runaways, we find *Coptis* spreading far afield. We are wondering, do these woodland plants do best when crowded? Someone, when asked, 'What does *Vaccinium caespitosum* need to make it grow happily?' answered, 'More *V. caespitosum*!' "

Asarum howellii—Mr. Leonard Wiley, 2927 S. E. 75th Ave., Portland, Ore., made an exhaustive effort to help Mr. Gus F. Krossa, Livonia, Mich., in his desire to find a plant of *Asarum howellii,* but to no avail. Seemingly such a species is not of record. Mr. Wiley wrote directly to Mr. Krossa stating that he had searched through his extensive botanical library, including the floras of the northwest, *Index Kewensis,* including the main volumes and ten supplements, and various other works, going back as far as 1814 in some of the older botanies, without finding any mention of this species.

West Coast Irises—Mr. Henry Fuller, RFD 1, Fairfield, Conn., suggests that an article on the culture of the native irises of the West Coast would be very acceptable. This is an opportunity for gardeners of the Pacific slope to increase the popularity of their delightful wild irises by writing of their experiences in growing them. Mr. Fuller writes that in the east such irises come quite easily from seed and are considered to be plants with much charm.

A Japanese Gentian—Mrs. Shirlee Hutmire, 21 Columbia Ave., Takoma Park 12, Maryland, writes, "Does anyone know the origin of a gentian species called 'Lozan'? I obtained seed from Mr. Jack Drake in Scotland several years ago. I understood that it came from Japan, and indeed it acts like it, growing and blooming beautifully. But I can't find anything like it in the *Flora of Japan* by J. Ohwi. (This is being translated at the National Arboretum and I borrowed the manuscript). It has set no seed for me, as yet, but blooms almost continually from late June till frost; a truly lovely thing." Please help Mrs. Hutmire, if you can. Perhaps one of our members in Japan has the answer.

Hypericum balearicum and *Verbascum spinosum*—Mrs. Hutmire, address above, would like to know sources of seed or plants of these plants as she lost hers during the last winter.

Eremurus and *Daphne* species—Mr. Robert Stuart, P.O. Box 88, Stratham, N. H., desires information on sources of seed of various species of these plants. However, he is not interested in seed of *D. mezereum.* But if anyone is interested in securing seed of the white form of *D. mezereum,* Mr. Stuart says that he has a fairly generous supply available.

Kodachrome Slides for the New England Unit—Mrs. Helen Gilbert, New England Unit chairman, Route 2, Danielson, Conn., will be happy to receive slides or copies of slides of plant material suitable for rock gardens from members everywhere, to augment their slide collection. Costs of copies and mailing expense will be reimbursed.

What Members Write—"Later reading of the last *Bulletin* (January, 1963) brought me to the story on *Lysimachia nummularia* (by Frances Kinne Roberson). The author is, to my eastern mind, a veritable angel of kindness to this plant, which to most gardeners hereabouts is a nameless weed. If a roster of plants of *increasing virtue* were treated with such affectionate and erudite consideration much would be accomplished, a wider public attracted or pleased."

Mr. Victor Greiff *of New York*

"Then there is *Fritillaria pudica,* not only a native American, but a superior 'Frit' for the rock garden. Of neat proportions with deep orange-yellow, nodding flowers, rippled without being cut and laced at the hem, they appear as demure Quakerish bonnets, utterly lovely. A whole row in the trial nursery is marching to meeting."

Mr. H. Lincoln Foster *of Connecticut*

"May many flowers bloom for you." This is the way Mrs. Shirlee Hutmire of Maryland, closes her letter. Don't you like this?

"In Interchange—Edgings for rock gardens (April, 1963) I was interested because I have a thyme terrace which attracts so much attention and is such a joy that I love to share it with others. With three shades of rose and lavender flowers and woolly thyme at the corners, it is a Persian carpet out of doors."

Ruth E. Hunkins *of New Hampshire*

F. CLEVELAND MORGAN

F. Cleveland Morgan, distinguished citizen of Canada and one of its leading patrons of the arts, died in his eighty-first year on October 4, 1962. Mr. Morgan, who was born in Montreal, was known to the older members of the American Rock Garden Society, of which he was a charter member. He attended a number of the early meetings held in New York City and in the rock gardens of the late Mrs. Clement S. Houghton at Chestnut Hill, Mass., and of Mrs. C. E. DeBevoise at Greens Farms, Conn. Mr. Morgan was also a vice president of the Royal Horticultural Society, and attended some of its gatherings.

The writer recalls a delightful evening in the library of the Houghton's home when she listened to Mr. Morgan discuss not only rock garden treasures but rare books. Both Mr. Morgan and Mr. Houghton were rare book collectors. Mr. Morgan was also a collector of valuable paintings and objects d'art.

Several A.R.G.S. members, among them the writer, had the pleasure of viewing the unusual wall and rock gardens on Mr. Morgan's beautiful country place in Senneville, a suburb of Montreal. One of the rock gardens was built on a bank that sloped sharply down to the margin of the lake; another was a "boulder-strewn lawn" near his residence.

He was gentle, quiet, and unassuming. Recognized as one of the leading authorities of the decorative arts, he never considered himself a scholar. "I feel," he said, "completely self-educated in this work of collecting. I had no formal training in the field. I was brought up to consider that 'a thing of beauty is a joy forever' and collecting beautiful things has been a magnificent experience for me."

DEH

AMERICAN ROCK GARDEN SOCIETY

Treasurer's Report

For the Year Ending March 31, 1963

Cash in banks at March 31, 1962			$4,838.07
Income for the year:			
Current dues — 1962		$ 892.24	
Prepaid dues:			
1963	$1,683.38		
1964	161.00		
1965	84.50	1,928.88	
Sale of Bulletins		41.50	
Advertising in Bulletin		125.00	
Plant sale at annual meeting		222.10	
Sale of books	$ 267.33		
Less: Cost of books	208.33	59.00	
Seed exchange	$ 314.15		
Less: Expense of seed exchange	268.71	45.44	
Gift		1.15	
Interest on savings account		93.11	
		$3,408.42	
Expenses for the year:			
Bulletin expenses:			
Printing	$1,736.10		
Cuts	41.92		
Mailing and postage	320.88		
Editor's compensation	300.00		
	$2,398.90		
General expenses:			
Secretary's compensation	$ 392.00		
Printing membership list	242.17		
Printing and stationery	155.03		
Postage	76.55		
Office supplies	29.22		
Meeting expense	39.60		
Insurance	25.00		
Membership dues	10.00		
Miscellaneous	6.24		
	$ 975.81		
Total expenses		3,374.71	
Excess of income over expenses for the year ending March 31, 1963			33.71

Cash in banks at March 31, 1963:		
The Northwestern Bank,		
Hendersonville, N. C.	$2,130.14	
East River Savings Bank,		
New York, N. Y.	2,741.64	$4,871.78

Respectfully submitted,
ALEX D. REID, *Treasurer*

SOME SHADE-LOVING NATIVE ROCK GARDEN PLANTS

ROBERT H. GAEDE, *Saddle River, New Jersey*

There is a growing interest in the use of native wild plants in shady rock gardens. Many of these plants may be collected where they are being destroyed or may be obtained from wild flower nurseries.

When the last section of the Garden State Parkway was being built in northern New Jersey several years ago, I was distressed to see the enormous quantities of valuable wild flower material being destroyed. A section passed through some swampland near our home. I had often botanized and collected plants in this virgin territory which seemed never to have been disturbed by man.

The thought struck me that some of this material should be made available for those who need wild flowers and ferns for their natural gardens. Another practical reason was that I was planning to retire in a year or two and needed an occupation that would be partly remunerative and keep me busy in my future active years.

I asked one of the engineers on the job if I might collect some of the plants about to be destroyed. It is always necessary to ask permission in any collecting work. I was told that I was welcome to help myself as long as I stayed away from machinery and trucks. He added that he was glad to see someone interested in saving plants where so many had to be destroyed. Most contractors, in construction areas being bulldozed, will grant permission to gather plant material when the purpose is properly explained.

Now, I am doing a small cash and carry business of wild flowers and ferns, along with some natural landscaping jobs, and I am often busier than I want to be. I am not making any money to speak of but with some business-like methods, I help to pay for a second car and pay all of my gardening expenses. I buy some plants which can't be collected in this area. I recommend this type of retirement occupation for those with gardening experience who wish to be happily busy. A small cash and carry business of specialized plants can be established almost anywhere.

Some hardy ferns add a great deal to the garden when used with native rock plants. *Asplenium platyneuron,* ebony spleenwort, is one of the best known. Its vertical fertile fronds are always attractive among rocks. Its smaller cousin, *Asplenium trichomanes,* maidenhair spleenwort, spreads its tiny fronds close to rock surfaces in lace-like patterns. Another fern often found near the latter is *Camptosorus rhizophyllus,* walking fern, which also hugs the rocks. These three ferns grow well in drained pockets or crevices of black humus soil in limestone areas. Where they are found growing in thick mats of humus on rocks, they can be lifted easily and planted in similar locations. If their roots are anchored in crevices, they should not be disturbed because too many fine rootlets are lost if lifted.

Three other limestone-loving ferns, larger, but still small in size, are quite similar in appearance. They are *Cystopteris fragilis,* fragile fern, *C. bulbifera,*

bulblet fern, and *Woodsia obtusa,* blunt-lobe cliff fern.

Two smaller unusual ferns found in more acid soil are *Botrychium obliquum,* coarse-lobed grape fern, and *B. dissectum,* laceleaf grape fern. These ferns have only one single sterile frond and a fertile frond that resembles an inverted minute bunch of grapes. They have an unusual growing cycle. The fronds die down in early summer and new fronds appear later in the summer or early fall. These grape ferns grow in loamy soil, often in second growth woods or abandoned orchards. They have coarse fleshy roots. Dig quite deep and try to retain as much soil as possible, which however often drops away from the roots.

A true rock fern is *Polypodium virginianum,* common polypod. This is a low fern usually six to ten inches tall and grows in thick mats on rocks or cliffs. It can often be stripped off the rocks by rolling it up like a thick rug. If planted on rocks, it should be planted on a layer of black humus soil so the roots can re-attach themselves to the rock. Enough watering for this and for all ferns is required so they do not dry out before becoming established. Polypod will grow on soil alone, if planted in a well drained area and imbedded in loosened humus soil. It likes an addition of ground limestone.

Other common but beautiful ferns include *Polystitchum acrostichoides,* Christmas fern, *Adiantum pedatum,* maidenhair fern, *Dryopteris intermedia,* fancy fern and *D. marginalis,* marginal evergreen fern. These are all larger and less intimate but they all have very pretty foliage. They are very helpful in forming background settings. These ferns are all evergreen except the maidenhair fern. The latter has a very slowly creeping rootstock while the others have crown rootstocks.

There is one fern which should be avoided in any garden. This is *Dennstaedtia punctilobula,* hay-scented fern. This species has creeping rootstocks which are very difficult to eradicate once it becomes established. This dense-growing fern has nice landscaping properties only as a background where it cannot invade. It is often introduced in gardens along with collected laurel and other wild plants. *Pteridium aquilinum,* bracken fern, is another nuisance fern to be avoided.

A number of species need more moist conditions than are ordinarily found in rock gardens. They include *Osmunda cinnamomea,* cinnamon fern, *O. regalis,* royal fern, *Pteretis nodulosa,* ostrich fern, and *Onoclea sensibilis,* the sensitive fern. *Osmunda claytoniana,* interrupted fern, is a very large fern which stands more dryness.

Some of the club-mosses, *Lycopodium,* which are fern allies, make excellent ground covers in shady wild gardens. Normally they grow slowly, but should they invade other plants they can easily be cut back. There are five species common to the New York area. *Lycopodium flabelliforme* and *L. complanatum* (the latter grows in more northern areas) are usually called ground-cedar. Their runners are above ground and they send down rootlets. *L. clavatum,* called staghorn club-moss, also trails over the ground, sending down rootlets. It resembles large green fuzzy pipe cleaners. It is also called running club-moss which may not be as descriptive as staghorn club-moss.

Lycopodium obscurum, ground-pine, also called princess pine, grows in the form of small upright trees. It has runners two or three inches under the surface with rootlets extending from them. *L. tristachyum,* deep-rooted ground-cedar, resembles *L. flabelliforme* except that the leaves are more cord-like. Its runners are also two or three inches below the surface. This species is less common and is more difficult to transplant than the others. All of these club-mosses are quite difficult. They have very fine rootlets attached to the main roots and they are very apt to be stripped off when being collected. Failure results when the plants die before the hair-like rootlets can regrow. If one takes enough soil and keeps

them well watered without drowning them, they can be established. Late fall or early spring planting helps a lot. All of these club-mosses like a well-drained and somewhat acid soil.

There is one more club-moss that is interesting. It is *L. lucidulum*, shining club-moss, which has single upright stems with leaves extending all around them resembling small spruce twigs. This club-moss is easier to transplant. It grows in damp areas and so requires more moisture after becoming established than the others. *(To be continued)*

SEED EXCHANGE REMINDER

The seed crop for 1963 should now be in process of harvesting and preparation for transmittal to Mr. Harkness. If after reading his article in the July, 1963 *Bulletin* on seed saving, Mrs. Pinney's lament and the admonition of the editor on the same subject, you have not been moved to contribute to the coming Seed Exchange, please be reminded that there is still time to enter into the fun — and work. Seeds, as in the past, should reach Mr. Harkness, at 5 Castle Park, Rochester 20, N. Y. no later than November 15th if they are to appear in the seed list. Please make his task easier by cleaning the seeds thoroughly and by labelling the packets correctly and *legibly*.

SOME REPORTS AND OBSERVATIONS FROM SEASON 1962

BETTY JANE HAYWARD, *Scarborough, Maine*

THE ASH BED AND SCREE—Having read with interest in books and bulletins from the British Isles of the use of ash in screes etc., we are testing it out in several areas in the rock garden. It is known that plants sometimes grow tired of one location, and in spite of care and attention to top-dressing and other factors, they dwindle and die out occasionally.

Two places chosen for the experiment had held many of the choicest plants. The plant material was removed first and then all the soil was taken out to a depth of eighteen or more inches. Coarse ashes, put through a screen of half inch mesh, were used to fill the excavation; rocks were rearranged for crevice planting and a five inch layer of good loam covered the surface. Such enrichment as seemed necessary was worked into this surface. Plants were then moved in and dressed with stone chips.

Among the plants in the test are the following that seem to relish the change: *Gentiana verna, Linum salsoloides* var. *nanum, Primula glutinosa, Androsace carnea* var. *laggeri, Douglasia vitaliana, Leucogenes grandiceps*, Himalayan gentian, saxifrages and many others.

Drainage is most important in growing and keeping many alpine plants. We will watch the result of this test and hope to report at a later time.

GLAUCIDIUM PALMATUM, from Japan, blossomed here for the first time in early June. The group of six plants grew in a cool, shaded spot beneath a tree at the back of the rock garden. Although we had seen it in pictures, we were astonished at the beauty of the huge, anemone-like blossoms of lovely lavender color. After the flowers passed, seeds formed in the strange, lyre-shaped seed pods. It seems there are two forms of this plant. In *The English Rock Garden*, Farrer states it to be to two feet in height; more recently, a dwarf form was given an award in England. Ours did not exceed fifteen inches at the most.

PATRINIA TRILOBA, (syn. P. palmata), continues to be a welcome contribution in soft yellow color to the summer garden. The spring garden is gay with yellow, but lessens as the summer advances. The shades of blue and lavender in campanulas etc., are complemented with plants such as *P. triloba*. Seed ripens

rather late in autumn and can be gathered then. It is enclosed in a thin appendage and it is difficult to separate the hard, cube-shaped seed from it. *P. triloba* is a worthy plant and is not too common.

GERANIUM WALLICHIANUM 'BUXTON'S BLUE' furnishes some blossoms of fine blue in summer. As the group is new, in its second year, the growth was a little sparse, but when there are added crowns, the effect will be improved. Farrer's description of the plant is most helpful in identifying the true species. The arrangement of the leaf bracts, marbling on the leaves and the white mark between the lobes, assures the novice he has the true type.

GENISTA & *CYTISUS*—Several of the small choice brooms have developed in size and importance this past year. Long ago, in the beginning of our garden, we had a number of these plants, but they were gradually lost. It is rewarding to acquire them once more. They are plants that appreciate the warm and dry situations and thrive best near rocks, especially if planted to hang over a big stone. *Genista pilosa,* with green twiggy growth and small leaves, somewhat evergreen, covers itself in early summer with fine yellow bloom. *Genista dalmatica* has twigs that are softly spiny and leafless and the blossoms are bright yellow. Cuttings will root, with care, and seed is set early. Winter mulch is advised in the north.

CHRYSOGONUM VIRGINIANUM, Virginia Gold Star, is unassuming. It is valued for its continual bloom throughout the whole summer. Coming from the thickets of Virginia and North Carolina, it is best suited in a low, well-drained shaded spot. Seeds form on plants still in bloom and self-sown seedlings are often found around the plants. Winter cover in the north is advisable.

CLEMATIS MACROPETALA was lovely for several years, trailing daintily through the top of an old and twisted Mugho pine. The blossoms of blue with white centers, the relatively small foliage and all, looked so right we were delighted. Soon, however, the balance was upset; the pine was bent and burdened with the exuberance of the vine. It became necessary to remove it, to clamber up a larger tree nearby. This is an example of how conditions at sea level differ from those in alpine regions, where shrubs often accommodate vines growing through them, to the advantage of both.

SCUTELLARIA BAICALENSIS var. *COELESTINA* has grown successfully here, providing spires of blue in late summer, which makes it acceptable. It is not especially spectacular, however. Its small relative with the contradictory name of *Scutellaria indica* var. *japonica* is an attractive and distinctive plant. It is not over six inches high and the stems are set with little scalloped leaves with the light purple flowers blooming up the stem among the leaves. The effect is airy and charming. This plant is not too hardy in northern gardens.

PRIMULA MARGINATA & *PRIMULA RUBRA*—To successfully grow any of the mountain primulas of the Auricula section is a challenge. Throughout the garden there are individual plants of a good number of them, but the two in the heading have been the real successes, with sizable colonies in numerous locations. In both species there is a considerable variation and some outstanding forms appear among them. Crowns are increased yearly and it seems to benefit the plants to increase them by division. *P. rubra* thrives in neutral soil. *P. marginata,* in one spot, is among blocks of tufa; lime has been incorporated in other places, however, it appears to grow as well without its use. *P. marginata* 'Linda Pope' has grown into a good colony. A type similar to *P. marginata* 'Pritchard's Variety' was recently divided into seven sections to fill a crevice in the new ash scree. Both of these species have been grown from seed during the years. The development of a flowering plant by this method requires several years. Once a stock of good plants is acquired, division is more satisfactory.

MECONOPSIS, with few exceptions, are not plants for the rock garden. Growing them, however, is a challenge, so these notes may be of interest. For more than twenty years a few of these plants have been in the garden for short periods. Each year seeds were sown and a limited success resulted. At last it was realized that we were mistaken in coddling the plants by putting them where the soil was rather dry and sharply drained of moisture. Finally a group was established in a relatively low spot, at the outer edge of branches of some small hemlock trees where sun reaches it for part of the day. The soil is moist and not particularly acid, due to frequent top-dressing. At present more than two dozen husky plants are growing there and producing the lovely blue poppy flowers. Seedlings of all poppy species are greatly benefited by careful transplanting a number of times when small as it disturbs the single taproot thereby increasing the whole root system. This has become our practice before we introduce the plants to the garden. Each year some seed of the finest sorts are tried.

WELCOME! NEW MEMBERS

Mrs. Alma H. Baade, 4040 South 52nd, Lincoln 6, Nebraska.
Mrs. E. S. Baring-Gould, 63 Westminster Gardens, Marsham Street, London S. W. 1, England.
Mrs. A. Barolini, Shady Lane Farm, Ossining, N. Y.
Mr. Lewis D. Bill, Parkway Gardens, 144 Parkway Drive, Stratford, Conn.
Mr. Edward M. Brigham III, 404 Balsam Drive, Davison, Michigan.
Mrs. Herbert Brinckerhoff, R.D. 1, Georgetown, Conn.
Mrs. Donald Burke, 305 Putnam Avenue, Brooklyn 16, N. Y.
Miss Dorothea C. Duttweiler, Brook Bend House, Holland, N. Y.
Mr. and Mrs. Robert W. Ehrich, 285 Garfield Place, Brooklyn 15, N. Y.
Mrs. George Elliott, Gamaliel, Kentucky.
Mrs. Armen H. Gevjan, 536 Dogwood Place, Newton Square, Pa.
Mr. John A. Gillin, 9400 Rockbrook, Dallas 20, Texas.
Mrs. Eldridge Glenn, South Main Street, Rock Hall, Maryland.
Howard's Greenhouse, 710 Keyte Street, Owosso, Michigan.
Mrs. Jenelle Kochin, 314 Dewey, Evanston, Illinois.
Mr. and Mrs. H. Levinson, 166 East 92nd Street, New York 28, N. Y.
Mr. and Mrs. Ralph M. Marcantonio, 23 Sunset Road, Easton, Conn.
Mr. and Mrs. N. H. Marks, North Greenwich Road, Armonk, N. Y.
Mrs. Curtis B. Mitchell, James Canyon Rt., Cloudcroft, New Mexico.
Mrs. William Parker, 75 Patmar Drive, Monroe, Conn.
Fred and Dorothy Rees, 211 Hillside Avenue, Wyckoff, N. J.
Mrs. Colin Sapler, "Pukerangi" R.D. 1, Carterton, New Zealand.
Mrs. Leon Tenney, Reading, Vermont.
Mr. Keith L. Thompson, 49 Royal Terrace, Dunedin C2, New Zealand.
Mr. Herbert E. Ulrich, 13 Maplewood Avenue, Honeoye Falls, N. Y.
Mrs. Clarence L. Zeilstra, 2653 Elmwood Drive S. E., Grand Rapids 6, Mich.

OMNIUM-GATHERUM

Mr. Henry Fuller, of Fairfield, Conn., has made this suggestion to the editor: "A rock garden can be a year round pleasure and more should be written on the special and changing beauties of off-season months such as August or November-December-January. Thanksgiving is a good time to take leisurely stock of the garden, and Christmas, too. All during the fall there is special beauty to be found in the aspect of the foliage and from the magic frosts in the morning. So, from time to time, why not have various people report on their gardens as

they find enjoyment in them during the duller months?" To follow his own suggestion, he added, "Last January 20th was, I remember, a clear warm winter day with no snow and the pyxidantheras were a gem-like red. They were beautiful all day, but in the early morning before the sun had melted the frost they were unearthly. The common thyme becomes at that magic moment the peer of any rock plant on earth, each tiny leaf a separate flashing jewel."

You will read this in October. In the months that follow, those of you who live where late autumn and winter means frost and snow and many times winter sunshine, won't you do as Mr. Fuller suggests; visit your rock garden at odd times? Undoubtedly you would rather sit before a cheerful hearth and whet your anticipation with the perusal of interesting seed catalogues, but do go out into the cold sunshine and when you have strolled about your winterbound garden and have noticed beauties there—beauties of texture, of subdued color, of frost-born sparkle and sometimes just patient endurance—beauties wholly unrelated to springtime's flamboyant display, won't you write about them for the *Bulletin*? In the warmth of your comfortable home write a description, short if it must be, of what you saw and felt and thought so that your fellow members and the many others who read the *Bulletin* may share your experiences and in so doing, recall off-season experiences of their own and, perhaps, be encouraged to enjoy their gardens in all twelve months of the year.

Have you ever seen a mountain slope which is a mass of silvery-foliaged lupine, just coming into bloom, on an early morning when the ground mist is starting to rise? This mountain mist, which is nothing more than languid air-bourne moisture, has bathed each minute part of each lupine and deposited thereon a film of moisture so heavy that the plant tips are weighted to the ground. Then comes the miracle of the sun's slanting rays and in a thrice the sodden mountain-side is transformed into a fairy slope of glittering diamonds as each bead of moisture refracts the golden beams. Then a second miracle; partial evaporation takes place and each plant in turn, and at times several together, spring up from their deferential position and in so doing shower the air above them with a sparkling explosion of diamond dust. To see this scintilating performance one must be in the right place at the right time and more than that, one must be beauty receptive. There are off-season miracles to enjoy in your own garden, too, if you will follow Mr. Fuller's suggestion. Gardens in the moonlight in any month, or in the rain, or when the wind blows can be enjoyable, also, and can be described. To know all of your garden's varying moods is to be one with it.

In Interchange (July, 1963) Mr. Wellington F. Barto of Arlington, Va., made an appeal for help in saving his precious seedlings. Answers have been coming in and have already been passed on to Mr. Barto. They have come from Mrs. Shirlee Hutmire, who lives across the Potomac River from Mr. Barto, in Takoma Park, Md., from Mr. Leonard Uttal, another Virginian and from Mr. and Mrs. Page Ballard of Issaquah, Wash. These answers and others expected to be received will appear in January, 1964, under Interchange Overflow so that southeastern members and others, as well, may be benefited if they have similar problems.

Zip Code Numbers—In writing to Mr. Totten use Zip Code 28379 as part of his address. The editor's number is 98107. When writing to the officers of ARGS or to the editor of the *Bulletin* please include your own Zip number in your return address.

Mrs. Harold Stillwell of Woodstock, Vermont, reports that the following officers were elected in May, 1963 for the New England Unit:

Chairman—Mrs. Helen Gilbert, Danielson, Conn.

Vice Chairman—Mr. Burr Bronson, Watertown, Mass.

Secretary & Treasurer—Mrs. Dorothy Stillwell, Woodstock, Vt.
Executive Committee—Mrs. Angie Pease, Auburn, Maine, Mrs. Merle Emerson, Somersworth, N. H., Mr. Lynn Ranger, Lynn, Mass., Mrs. Elizabeth Newton, Reading, Vt.

Mrs. Stillwell reports the deaths during the past year of Mrs. Stephen Hamblin, Mrs. Lynn Ranger, Mr. James Mitchell and Mr. Dwight Granger, all of whom will be missed.

When you read that part of "Notes from the Northwest" under the heading "Conference Report" try to visualize the work that was necessary to assure the success of such a program. Who took the responsibility of this project and carried it through to its successful conclusion is not apparent in the text of the report, for Sallie Allen is very modest. With no confidence in her ability to carry out such an ambitious program, she, nevertheless, had the courage to assume full responsibility for it.

In July and August, 1962 Mr. J. C. Archibald, who lives in Midlothian, Scotland, led an expedition into Morocco where collections were made in the Rif and the Middle and High Atlas mountains. Mrs. Shirlee Hutmire, Takoma Park, Md., has this to say concerning her experience with species collected there: "Six species from the Atlas Mountain Expedition of Mr. J. C. Archibald have already bloomed for me. Two are really gems. J. C. A. 93, *Campanula filicaulis* (?) is the best of these. It made little rosettes sending out prostrate stems pinwheel fashion, from whose upturned tips bloom lovely widespread lavender cups. J. C. A. 76, an annual campanula with no name as yet, can sow itself all over my rock garden, if only it will! It germinated profusely and is now covering a 2×3 foot slope with cool lilac frost most welcome in this 95 degree heat! They have been blooming for a month. Another campanula, J. C. A. 117, tentatively *C. mairei* var. *atlantica,* is not worth growing as it has bloomed here. The flowers are washy lavender and minute, the petals no longer than the leafy sepals. *Salvia taraxicifolia,* J. C. A. 105, is lovely at close range; at any distance the pale pink flowers blend into the gray foliage. The individual flowers are worth looking at with their rosy washes and spots. The plants have grown from 5 to 8 inches tall here. A composite, J. C. A. 123, has fine ferny foliage, grows to a floppy foot or so and has pleasant yellow daisies. To me, its most interesting feature is its aromatic foliage. When touched it has the odor of an old-fashioned lemon-scented geranium. I always stop to touch it as I go by. *Anacyclus* sp., J. C. A. 129 is frustrating. The foliage is greener than that which I have as *A. depressus,* the flowers half the size, the stems long and bending, but the petals turn scarlet shortly after opening and remain that color for days! Hybridizers hearken and develop a scarlet *A. depressus* for us!

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