



Bulletin of the
American
Rock Garden Society

Vol. 37

Spring 1979

No. 2

The Bulletin

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Published quarterly by the AMERICAN ROCK GARDEN SOCIETY, incorporated under the laws of the State of New Jersey. You are invited to join. Annual dues (*Bulletin included*) are: Ordinary Membership, \$7.00; Family Membership (two per family), \$8.00; Overseas Membership, \$5.00 each; Patron's Membership, \$25.00; Life Membership, \$150.00. Optional 1st cl. delivery, U.S. and Canada, \$3.00 additional annually. Optional air delivery overseas, \$6.00 additional annually. Membership inquiries and dues should be sent to Donald M. Peach, Secretary, Box 183, Hales Corners, Wi. 53130. The office of publication is located at 5966 Kurtz Rd., Hales Corners, Wi. 53130. Address editorial matters pertaining to the *Bulletin* to the Editor, Laura Louise Foster, Falls Village, Conn. 06031. Address advertising matters to the Business Manager at 1421 Ship Rd., West Chester, Pa. 19380. Second class postage paid in Hales Corners, Wi. and additional offices. Bulletin of the American Rock Garden Society (ISSN 0003-0864.) Date of Publication: April 15, 1979.

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HARDY CYCLAMENS

W. J. HAMILTON JR.

Ithaca, New York

Drawings by William C. Dilger, Freeville, N.Y.

Throughout the Mediterranean area, as far east as the Black Sea, one form or another of the wild cyclamen occurs. These are adaptable little plants, occupying a wide range of habitats. In their native haunts, they have a long season of bloom. The attractive leaves, often forming a dense ground cover, can add much to our gardens. Few plants provide so much enjoyment once they have become established. It is, indeed, unfortunate that so few gardeners know them, and far fewer attempt to introduce them into their plantings. Cyclamens do have the undeserved reputation of being difficult. Perhaps gardeners have been disillusioned too often by purchasing the dry collected tubers that often take several

years to settle down.

When selecting a site for these little charmers, it is well to recall the habitat that they occupy in their native lands. Most are shade lovers, and occupy well drained stony ground, where the tuber has some shelter from the sun. In the forest, they seek the shelter of large oaks, beech and conifers, occurring from sea level nearly to snow line. In the wild, the tuber may be nearly a foot deep, or actually exposed on the surface. How adaptable they really are is evident from a note I received from Timmy Foster. She writes, "I'll never forget seeing the little blossoms of *C. coum* scattered over a limestone talus slope in Lebanon just below a snowbank in early March. We had to

lift away the rocks to reach the corms which were about 12 inches down (no soil was apparent) with the pedicels snaking their way up between the stones. The flowers were just on the surface." If this appears to be adverse conditions, consider *Cyclamen colchicum*. Professor Otto Schwarz tells us that this rare species grows a mile high in deep shady crevices of the precipitous dolomitic cliffs in Georgian U.S.S.R. Fortunately, we can achieve success without approximating these harsh conditions. In our own gardens, we should plant the tubers where some shade is available, or if in the open, the protection of a flat rock partially covering the roots will be helpful. Since most cyclamen are shallow rooted, do not be concerned with the competition of shrub and tree roots.

The tuber varies somewhat in appearance with the species, but is usually a rounded, somewhat flattened structure that is often slightly concave above and rounded below. Picture, if you please, a stemless mushroom upside down and there is your cyclamen tuber. Depending on the species, the roots may spring from the top and upper sides (*hederifolium*), essentially all over the structure (*purpurascens*) or from a well marked root ring in the center of the bottom. The disposition of the roots may vary, for we have grown *coum* with roots arising from the sides, while others have a basal tuft of roots only. Occasionally brittle stalks develop on the upper surface, and should the tuber be buried rather deeply, these may be several inches long. These stalks frequently appear on *C. purpurascens*. The tuber covering may be corky or thin skinned, often broken with cracks. Examine the tuber carefully when planting, making certain the top is right side up. Since the roots may grow upward toward the surface, one may

mistakenly plant the tuber ventral surface up. There is only a short dormant period when such an error can be made.

Presumably every flower lover knows the florists' form of *Cyclamen persicum*. The much smaller flowers of wild species have rare charm, their dancing butterfly-like blooms held aloft on two to eight inch stalks. Color is variable, several species showing considerable variation from pink, rose, magenta to white. Some support ear-like auricles on the rim of the corolla (*hederifolium*). Most species have red or purples blotches at the mouth of the flower. Many are sweetly scented, notably *purpurascens*.

It is fascinating to watch the development of the seed. When fertilization occurs, the corolla drops away and in all species excepting *persicum*, the flower stem commences to wind up, eventually forming a spiralling mass of coils about the developing seed pod (fig. C). Strangely enough, and irrespective of their season of bloom, all cyclamen ripen their seed in mid-summer. Thus, *coum*, flowering in March, may take but four months to produce ripe seed, while *purpurascens* may take a full year. As the fully developed hard seed capsule ripens, the long stem slowly unfolds, thrusting the pod away from the crown of the tuber. Slowly the capsule softens, the distal portion folds back to reveal a brown mass of seeds, like a partially hidden chocolate raspberry. Each capsule will contain from twenty to sixty seeds. While still in the splitting capsule, the seeds are covered with a sticky gelatinous substance that has a marked attraction for ants, wasps and other insects. Often within minutes of dehiscing, the ripe brown seeds are carried off by insects which relish the sweet coating. Hence one finds seedlings cropping up in an area well removed from the

parent plant. If one is alert, the reward may be as many as five hundred seeds from a large plant of *hederifolium*.

Cyclamen tubers neither divide nor produce offsets, they merely increase in size as they become older. Thus propagation is dependent upon the sowing of seed. It is essential that fresh seed be planted as soon as collected to insure good and rapid germination. If one delays planting, the seeds may lie dormant for many months. If the seed is not fresh, germination is hastened by soaking them for a full day. We sow the seed in flats and keep them on the greenhouse bench for the first year. One may expect germination in from four to six weeks. In three months, the little tubers, now supporting one or two leaves, may be transplanted to stand an inch or two apart. They are set out in permanent quarters the following August, a year from sowing the seed. Following this practice, we have flowered *hederifolium* in thirteen months. Our friend, Nina Lambert, planted seed of *C. purpurascens* in mid-July of 1977. These were set out in the border in the spring of 1978. Eleven months from sowing, half of the little plants had single flowers.

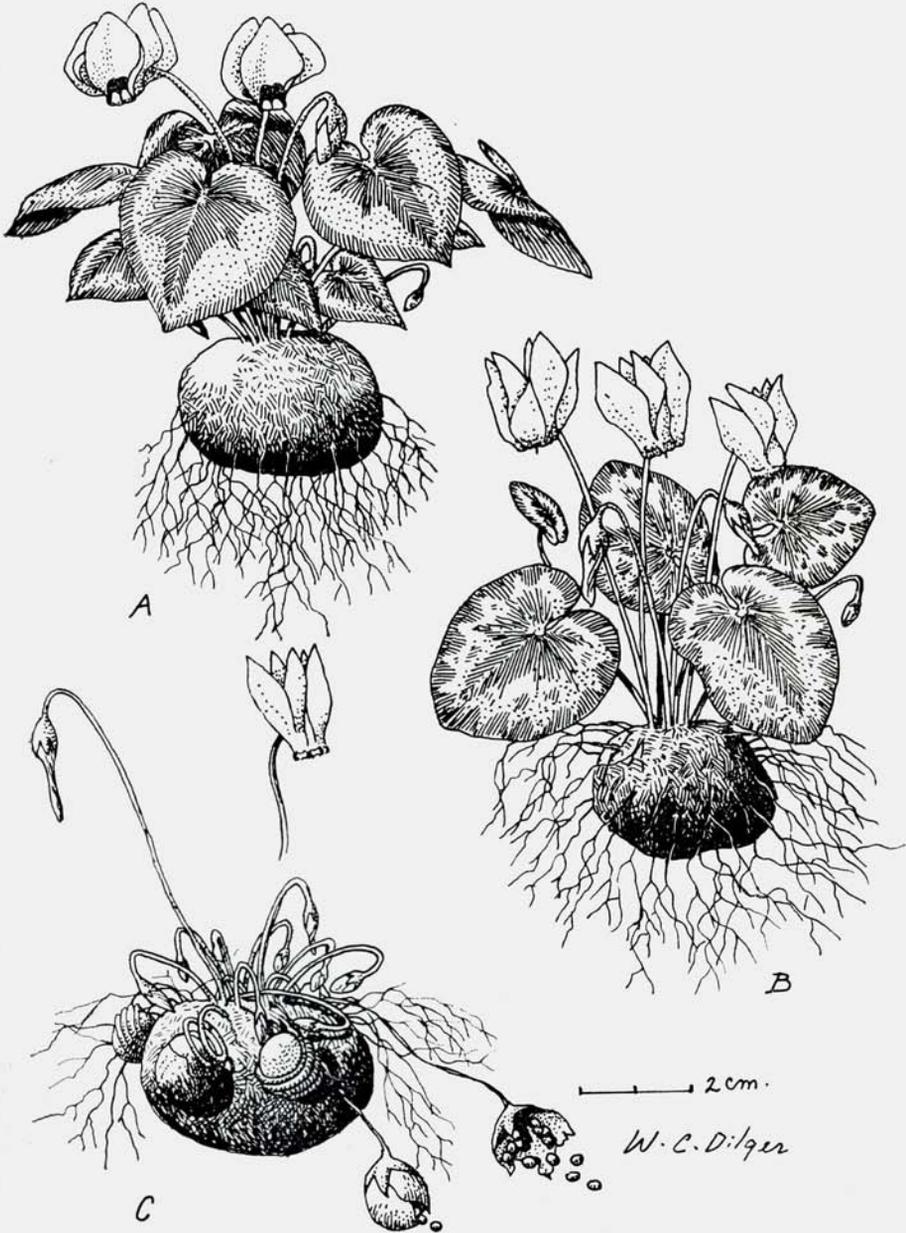
Lacking a greenhouse, one can sow fresh seed in a flat or bulb pan, putting them under lights with the approach of cold weather. If top dressed with coarse grit and covered with pine needles after the first frost, those plants which have appeared will survive the winter, while the remaining seeds will germinate the following spring. If started in a cold frame, mulch heavily with evergreen boughs the first winter.

One must make a start — with seeds! Once established, cyclamen are among the longest lived of all garden plants. Some have been known to live eighty years and attain the width of a dinner

plate. One of my *Cyclamen hederifolium* is now thirty years old, measures five inches in diameter and produces over fifty flowers over a six week period.

It is indeed fortunate that the easiest doer is the best of the hardy cyclamens. *Cyclamen hederifolium* (*neapolitanum*) is so named because of the likeness of its leaves to those of ivy. Its rose pink flowers on creeping stalks first appear in August. A marvellous white form, its mouth flushed with red or pink, is widely grown. Soon after the flowers open, a spectacular growth of leaves, borne on long, creeping petioles, adds greatly to the charm of the plant. The leaves exhibit a surprising variation in their size, shape and color pattern. After the flowers have faded, in early November, the marbled leaves continue the show, persisting in all their beauty throughout the cruel northern winter. The leaves fade away in June or July and the tuber takes its rest for a few weeks. The great English gardener E. A. Bowles wrote, "I do not know any plant that pays a better rent than *C. neapolitanum* during the eleven months of each year and only in one does it ask for a holiday with pay."

While *hederifolium* must be our first choice, the sweet scented *Cyclamen purpurascens* (*europaeum*) is another hardy gem. Its deep carmine flowers pirouette on five to six inch stems, well above the slightly toothed dark green leaves (fig. B). These leaves may be plain or touched with silvery blotches above and reddish below. While the leaf is variable, it never approaches the remarkable leaf variation, both in shape and color pattern that is found in *hederifolium*. While this species is almost evergreen, it lacks the rugged hardness of *hederifolium* and may disappear after several years. A pot grown specimen in the Cornell Plantations



A — *Cyclamen coum* ssp. *caucasicum*. Roots more typically grow in a central tuft from base of tuber.

B — *Cyclamen purpurascens*

C — *Cyclamen hederifolium* in seed. Flower above.

greenhouse has been in continuous bloom for nearly three years. This species often produces knobby "stems" from the crown of the tuber from which the flowers grow, a feature common to several other species. These knobs are often destroyed in shipment, setting the tuber back a full flowering season. *Purpurascens* has the tendency to settle deeper than many other cyclamens. It is often recommended that they be planted four to six inches deep. In our area, the tubers do well even when they are partially exposed.

Our last truly hardy species is *Cyclamen coum*. This remarkable little plant is known to few American gardeners. Our plantings produce their plain green leaves, sometimes slightly mottled, in late fall. The dumpy little magenta flowers appear in March, no matter how frigid the weather. The subspecies *caucasicum* is a bit larger than *coum*, the leaves heart-shaped with a distinct silver pattern (fig. A). We have a little colony by our sun porch door, and in February (temps. occasionally to -20F.) the prostrate petioles support little pointed reddish buds that open into glowing sparks through the crusted snow of March. Since snow may cover the plant at this season, it is well to place a pane of glass or clear plastic cover over the flowers, the better to enjoy this bit of color in the waning days of winter. We also grow a dozen tubers in an oak barrel half. Here they keep company with a few *Crocus flavus*, and never fail to astonish the few visitors who tour the garden in this bleak period.

Other dwarf cyclamen we have tried are *C. cilicium* and *C. repandum*. They may linger a year or two through our harsh Ithaca winters but surely deserve a better fate. If you must grow these and other less hardy cyclamens, try potting them in clay pots sunk in a

bed of sawdust for the non-blooming period. As the buds form, bring them into the house and place on the kitchen window sill. Indeed, all cyclamen lend themselves well to potting. We grow some under lights in an unheated garage, where temperatures drop nearly to freezing.

How far north will cyclamens grow? We simply do not know. Betty Ann Mech of Minneapolis has given up on all species in boreal Minnesota. Roxie Gevjan grows only *hederifolium* outdoors in the Philadelphia area, having failed with *coum*. But Pamela Harper of Seaford, Virginia finds *C. repandum* hardy "even through the very bad winter we had two years ago (coldest on record for the area), just touched zero F. Frost went deep into the ground which stayed frozen several months." Pam had *cilicium* for several years, and lost it because it had too bad a spot, impoverished and dry under a water oak. Perhaps we blame the weather too much for our failures. Soil conditions and the proper siting of our plants may be more important than we suspect.

Cultivation of hardy cyclamen poses no difficulties. Tubers are planted preferably when they are dormant. A light neutral soil, rich in humus, and semi-shade suit them best. Since most are shallow rooted, exercise care in cultivating the soil about them. If seed is to be sown, it should be fresh. Leaves appear with the fall rains, but water should be provided in dry periods even though the plants are dormant. A few species undergo a period of baking in the wild, but this treatment is unnecessary in our climate.

Find a neighbor who grows cyclamens and get a start from his or her garden. But don't delay, for these cherubs give sweet cheer and provide unending joy for most of the year.

CYCLAMEN PURPURASCENS: SAXATILE PROCLIVITY

BRIAN DUTTON
Oak Park, Illinois

A recent rereading of some ARGS Bulletins led me to write this note that may be of interest to those of us with a fondness for hardy cyclamen. James R. Baggett of Oregon (Vol. 31, 1973, p. 81) writes of a *Cyclamen hederifolium* (syn. *neapolitanum*) growing in a cavity amongst rocks and producing a tight clump that flowers and seeds well. In a later issue (Vol. 32, 1974, pp. 164-169) I read Vladimir Vasak's intriguing study on "Cyclamen in Colchida". He refers to one species, *C. calcareum*, that grows "in crevices of lime rocks in the narrow rocky canyon of the river Chkenis-Ckali . . ." The normal habitat of the genus is shady woodland or scrub with the tuber at varying depths, but generally with the natural leafy mulch of its habitat to protect the plant through the winter. In many cases this cover is augmented by snow. The spring-flowering species are all prone to be tender, unfortunately, whilst *C. hederifolium* and *Cyclamen purpurascens* (syn. *euro-paeum*), both fall-flowering species, have proven to be extremely hardy, if given a good mulch.

C. purpurascens is less grown than *C. hederifolium* for reasons that I cannot comprehend. *C. hederifolium* comes from Southern Italy and Greece and is not montane even, being a woodland plant that in its right setting spreads quickly by seedlings. It has successfully established itself in plantations in the British Isles. However, the climate of Great Britain is more like that of Oregon than the searing blasts that we experience in the Mid-West, where snow

cover is often lacking and conditions can approach those of windswept tundra. *C. purpurascens* on the other hand is quite definitely montane in nature, reaching 2,000 meters (6,500 feet) all around the Alps. It usually grows on limestone formation in stony woods or scrub that provide protection from the harsh sunlight in summer and the worst elements in winter. While the leaves of *C. hederifolium* are ivy-shaped, those of *C. purpurascens* range from heart-shaped to round or even reniform, with a tiny toothing on the outer edge that may disappear with age. The underside of the leaves is a rich violet-purple. Both species have white marbling on the upper side of the leaf. The flowers of both species are similar, though *C. purpurascens* goes beyond the pinks and roses into carmine or even rose-violet shades. My general impression is that the northern plant has a wider, richer color-range than its southern sister. The seed of both species ripens in the summer following the fall flowering and when fresh (or chilled and soaked) germinates readily. So far, then, both plants would appear to be more or less equal in merits, with *C. purpurascens* color range matched by *C. hederifolium* greater floriferousness.

However, two elements from the rock gardener's point of view give *C. purpurascens* the final advantage. First of all it is definitely an alpine, and is listed in all Alpine Floras that approach comprehensiveness. Though most commonly found in woods, it also has a marked tendency to be saxatile. On the northern side of slopes, large rocks,

cliffs etc. in the northern Italian Alps I have seen colonies of *C. purpurascens* that were flourishing. The description of the habitat of *C. calcareum* therefore interested me greatly, since the limestone crevices of a shady gorge would offer the same basic conditions as the north-facing sites I describe. This, and our Oregon colleague's experience with a saxatile *C. hederifolium* made me think that my own successes with *C. purpurascens* might be of interest to fellow enthusiasts.

My rock garden is made up basically of limestone slabs two to nine inches thick, and arranged in several ways to create various soil, moisture and sun-shade conditions. The whole garden faces north and slopes down to six to eight inches from three feet in about six feet, with variations from gentle inclines to sheer "cliffs". It is about thirty-five feet long, with a 'scree' in the center. This is the nearest I could get to a north-facing alpine site in Oak Park, Illinois. I decided to try *C. purpurascens* for two reasons: its montane nature and saxatile proclivity already mentioned, and also the fact that it comes into bloom earlier than *C. hederifolium*, often beginning in late July and going on till the hard frosts. In addition, I had access to material that originated in the Italian Alps and was therefore of the right strain.

The rock garden dates from the fall of 1970. For the winter of 1970-71 I cosseted six tubers in pots, protected from all extremes, and was rewarded with leaf but scant flower. In the spring of 1972 I set them out in the rock garden, three in woodsy soil with limestone chips at the shady base of a mini-cliff, and three in pockets of the same soil mixture set between large limestone slabs arranged at a 45° angle to provide some shade. Both groups were set two inches deep, though the

second group had in addition at least three quarters of an inch of small limestone chips over the soil. During that summer some wee beastie dined on two of the tubers in the woodsy setting, but the three in the slabs were protected by their rocky home.

At flowering time in 1973 the four plants did very well, though the three in the more Spartan rocky setting did better than their friend in the richer woodiness. Both groups have now spread into colonies and I have planted offspring in a variety of sites. Enough time has passed for me to be convinced that *C. hederifolium* thrives in a saxatile setting provided it can be shaded from the hottest summer sun. After five years, the rocky plants have consistently produced more flower and seed than any in any other site. Each year I have harvested more and more seed, and except when I was out of the country in 1975 for a few months, I have been able to send more seed to the ARGS Exchange. Always enough seed has escaped the harvest and germinated in the most incredible nooks and crannies to provide me with plants for my own purposes. I do advise, however, that a few seedlings be overwintered for protection. Most of my losses have been due to small rodents who adore the small tubers, but seem to leave the larger ones alone.

To sum up, the saxatile proclivity of *C. purpurascens* appears to be to its advantage (and ours) and is not unique among cyclamen, as witness *C. calcareum*. Although *C. hederifolium* is hardy, *C. purpurascens* is doubly so at its natural depth of two to three inches among limestone rocks in a humus-rich gravelly soil. It does not have to apologise to its more southerly sister for its leafage, its flowers, or their forms and colors. In fact it does have the advantage of blooming earlier

and therefore longer, being more saxatile and quite definitely more montane. Its requirements appear to be some shade, moderate moisture, a depth of two to three inches for the mature tuber, a soil mix of equal parts of loam, leafmold (or peat) and gravelly limestone, with a generous sprinkling of bonemeal, and a site on the shady side of limestone rocks. A top dressing of rough limestone gravel is a distinct advantage, and its greyish cast shows up the rich colors of the leaves and flowers admirably. In these conditions, especially with snow cover, one can enjoy this delightful plant year after year no matter how those winds howl. My colony survived happily the -20° weather of January 1977.

If the plants do not show leaf until July, there is no reason to be alarmed. With snow cover the leaves are almost evergreen, but if lost they return just before or with the flowers in July.

ABOUT WALLS

MADALENE MODIC

Sewickley, Pennsylvania

It is difficult to find rocks suitable for good rock construction in some local areas and it is far too expensive to have tufa, weathered limestone or sandstone trucked in. Most of the local stone is in slab layers and suited only to special applications.

Kingdon Ward in his book, *Commonsense Rock Gardening*, has this to say about building material for rock gardens and walls: "Build with stratified rock of any description if you can, with igneous rock if you like, with bricks and mortar if you must, but anyhow build!"

We are in an area where there were

Also, the bare patch can be covered with shallow-rooted mild mannered plants such as *Linaria alpina*, or in one case, *Corydalis lutea*, which the cyclamen push aside as they grow. By the time the *C. purpurascens* is coming into bloom, I can pull out the *Linaria* since by then it has seeded itself to death.

The young tubers/seedlings should be set so that only one third of the leafstem is above ground. Each year its natural tendency to go deeper, plus the top-dressing of equal parts of fine limestone gravel, humus and bonemeal that I recommend in June, will leave the matured tuber at its right depth. However, the happiest surprises are the tough little strays that emerge from cracks and crannies, full of perky defiance, even to the point of blooming and surviving in full sun! If only such a hardy spring-flowering cyclamen could be found!

many coal mines and all that remains of some are the old burned out slag dumps. It is stretching it too far to call this igneous rock. These slag piles are made up of rocks and thin layers of coal sandwiched between stone, coal dust and other debris. There is sufficient combustible material for these piles to burn for years, some still smoldering thirty years after the dumping has ceased. This slow burn fuses the whole mess into a clinker-like substance called "Red Dog" because of the reddish tones it takes on in the process of burning.

One cannot use material such as this

and make anything that will be a work of art without having an inner sense of balance, order and an artistic eye, but Mr. and Mrs. Carl Gehenio of Tarentum, Pa. have these attributes and selected the large pieces that would fit together properly to build a retaining wall some six feet high. Some were huge pieces and these Carl anchored well into the hill. A rather heavy clay soil was used to fill all the voids between and behind the clinkers, the porosity of these providing the necessary aeration and drainage for the well-being of the plants.

The exposure is south-west, yet saxifrages of all types flourish in the crevices, even the mossies. Sem-pervivums and sedums are stuck to the face of the clinkers with no soil added. Other plants that thrive in this wall are dianthus in variety, arenarias, armerias, drabas, aquilegias, veronica, antennaria, lewisias, various thymes, compact forms of *Phlox subulata*, small iris, iberis, aubrietia, achillia, lotus, potentilla, erysimum, helianthemum, geranium, hypericum, aethionema, and even self-sown heathers.

The first time I saw this wall I couldn't believe it was built of "Red Dog" clinkers it was so attractive and firmly constructed. Now, several years later, it is all planted and only portions of the clinkers can be seen among the plants.

This past summer the Allegheny Chapter held a meeting at Joanne and Don Schlinders' in Brentwood, Pa. and I was really impressed by their wall garden. Don said they had been working on it for nearly five years and it was nearly completed.

The back of the Schlinders' lot slopes upward some twenty to twenty-five feet. It is about seventy-five feet wide at the top where there are deciduous trees: Sunburst Locust, tulip, maple, Green

Spire Linden, apple and poplar. Below and between these are planted Colorado Blue Spruce interspersed with clumps of yucca, rhododendron and azaleas. The rock strata has been placed by Don and Joanne up to and under the trees giving it a natural setting. On each side are more evergreens.

Some say it is not a wall garden and others that it is not a rock garden; I think it is the former because the sandstone slabs are so evenly aligned from one side to the other. Don says he set out to simulate Pennsylvania rock strata. He used all native stone from the Mt. Davis area in the Allegheny Mountains of southwestern Pennsylvania, some from strata exposed by construction work. It is mostly sandstone with a very little limestone mixed in. He used stream bed granite on the garden slope.

The semi-circular ledge is made of large, flat slabs of sandstone, in many cases with three or four slabs placed one on top of the other to give the appearance of natural strata. You can trace the evenness of the rows across the seventy-five foot wide face from one side to the other, but the slabs are not in a solid line, having many breaks in which plants are growing. Then too, there are niches for plants needing overhead protection. In many places such plants as aubrietia, helianthemum, *Saponaria ocymoides* cascade over the rocks from between the slabs, yet this never destroys the feeling that this is primarily a wall. On the left side Don has brought water about half-way up the wall from behind and this can be turned on to ripple over the face to a pool at the bottom. As there is both sun and shade, a wide variety of plants, including primula, dwarf iris, armeria, phlox, campanula, veronica, thyme, arabis, iberis, and many others thrive in this wall garden.

The Rediscovery of *Phlox Lutea* And *Phlox Purpurea*

PROF. EMER. T. PAUL MASLIN
Boulder, Colorado
Photographs by the author

In 1887 Cyrus Guernsey Pringle visited Mexico for the seventh time with the intention of exploring the Sierra Madre west of Chihuahua. By September fifth, he and his assistant left Cusihuiriachic, locally referred to simply as Cusi, driving their wagon and team of mules westward up a steep and muddy canyon for about four kilometers to the high plain across which Highway 16 now runs from Cuauhtemoc to Guerrero and on. Where they emerged the altitude registered 6,700 feet. From Pringle's account (Davis, p. 41) they proceeded out onto the plain for a short distance where they collected a few species of plants including *Phlox nana* and then proceeded on to Santiago for the night. The following morning they passed Rosario and continued northwest to Guerrero, arriving there at noon. After spending two nights at Guerrero they moved south about two miles, camped for a few days, then apparently moved to higher ground to the west and set up a permanent camp, presumably among oaks and pines. It was here on September 14 that Pringle collected *Phlox nana* again.

Later, Brand (1907) in his monograph of the *Polemoniaceae* named these forms. He recognized three subspecies of *P. nana*, namely *eu-nana*, *ensifolia* and *glabella*; with three varieties of *eu-nana* and two of *glabella*. The three varieties of *eu-nana* were *albo-rosea*, *lutea* and *purpurea*, all

names proposed by Brand himself in this monograph. Subsequently, Wherry (1944) recognized *P. nana* var. *eu-nana* f. *purpurea* as an intermediate form between *P. nana* and *P. mexicana*, but discussed no others of this group. In 1955, however, he considered *lutea* and *purpurea* as forms of *P. mesoleuca*, and *albo-rosea* as a synonym of *P. nana*.

The knowledge that a yellow phlox might exist came to me while working on *Phlox nana* (1978). It was Foster's (1970) comment that "yellow flowers have been reported in two of the three taxa (*mesoleuca*, *nana* and *triovulata*) and would constitute a completely new colour in the cultivated perennial phloxes, if they could be located and introduced" which stirred me to think seriously of looking for *lutea*. At first I thought that Brand had proposed the name on the basis of a peculiarly yellow, faded specimen from an old herbarium sheet. But at Kew I saw a type sheet of *lutea* and was impressed with the depth of yellow of this "faded" specimen. With this evidence in mind it was no trick to persuade my wife to join me in a search for the mythical yellow phlox so close to home.

So in September of 1978 we started out towards the type locality one thousand miles away where the plants purportedly should be in bloom. We made Ciudad Cuauhtemoc some sixty miles west of Ciudad Chihuahua our headquarters and began our search. The

area is much as Pringle fragmentarily described it; very large open plains of rich alluvium surrounded and interrupted by low hills rising several hundred feet above the plains and lightly covered with scrubby oaks, junipers and several species of small pines. The plains are now completely planted, primarily to cereals and corn. The steeper slopes are often used for apple orchards and the remaining land is fenced and devoted to grazing. This intensive use of virtually all of this rich area leaves little undisturbed land left. The rainfall of the region is of the monsoon type, beginning in late July or early August and increasing in intensity through September and October, then slowly decreasing in the next two months. Spring and early summer are hot and dry with no verdure to speak of at all.

From my experience with *Phlox nana* and *P. mesoleuca* v. *ensifolia* from farther north, both members of Wherry's (1955) subsection *Nanae*, I began looking for phloxes in the hilly areas which are quite reminiscent of the Pinyon-juniper forests in the vicinity of Santa Fe, New Mexico. In spite of heavy grazing, these areas were rampant with flowers, only a few of which I could recognize. *Milla biflora* was nearly as abundant as when Pringle (Davis, p. 46) collected 2,500 bulbs in eleven and a half hours in 1887. But there were no phlox. After three fruitless days of searching in the vicinity of Cusi, Guerrero and the hilly areas between, we were ready to retreat, defeated.

By now both my wife and I had mysteriously contracted what in this area should be called Cuauhtemoc's revenge, and on the way out to a hilly area west of our headquarters we pulled off the road crossing the plain for a medicine break three miles west of town (Km. 107 on Hwy 16, 7200 feet

elevation). I climbed out of our van for a look around and there, in the borrow ditch was a patch of an incredibly brilliant, vermillion-red phlox (see fig. 2). Closer examination showed that each flower had a bright yellow eye surrounded by a star composed of short, dark red streaks, two to a petal. No single stalk had more than one to three flowers in bloom at a time, but a cluster of closely grouped plants gave the impression of abundance. Also in this patch of intense red a single yellow flower stood out conspicuously. Here was our yellow phlox! This single flower seemed a little larger than the reds and had quite a blush of red on the edges of some of the petals. This strongly suggested that either there were two species of phlox in the vicinity which hybridized here, or these were two color phases of a single species inter-grading at this site. Also present were two orange colored flowers, rather old and insect ravaged which strengthened the idea that this patch really represented a hybrid swarm.

There had been no rain at this exact spot for some time and the ground was hard and difficult to dig, but a fair number of plants were collected as well as a very small number of mature seeds. We then looked for further stands, driving slowly west for five miles along the wagon tracks in the borrow ditch. We spotted one more very small patch of red phlox and two or three isolated specimens along the way. The following morning more specimens were dug and additional photographs made, using an electronic flash. A very few more seed capsules were also found. We then returned home to Boulder, Colorado, with the intent of returning a month later to harvest more seed and to look for more yellow specimens.

My wife was unable to join me on the second trip but fortunately my good friend and collecting colleague, Panayoti Callas, was able to go; so on October 22 we set off in a snowstorm to revisit the area. This time we went directly south of Cuauhtemoc to search the plains in the vicinity of the point where Pringle emerged from the canyon on his way up from Cusi. By now flowers were scarce and the grain nearly ripe and ready to harvest. There had also been some very heavy rains in the area and the ground was saturated. As a matter of fact the Juarez-Chihuahua road we came south on had been closed until the day we took it: three bridges had been washed out by heavy storms. It had snowed or rained almost continuously since we had left Boulder, but the weather, now chilly, was clear.

As we inched our way south along a vile road, it struck us we might ask some local resident if they knew where our flowers might be found. The first persons we stopped were a young man, Raul Romero, with his wife and child, driving a wagon and mule team in the same direction we were going. I handed him the color photos of the red and yellow phlox which he examined at great length. He seemed puzzled by the red phlox but said he knew of a patch close by which might be the yellow one we wanted. Then he suggested we accompany him to a small village, Ejido Mimbres, about one kilometer further south, where he said an old woman interested in flowers might know more. We followed him and met the woman, a fine and gracious lady. She didn't recognize the flowers from our slides but went out to pick a red flower which might be it. The flower turned out to be a four inch purplish mallow new to me but not a phlox. Raul agreed then and there

to accompany us to the spot he knew.

The area half-surrounded a small lake lying in the midst of wheat fields and was partially fenced. The area around the lake had been neither grazed nor plowed. As I walked along beside a fence I suddenly saw in a small rock outcropping a beautiful, pure yellow phlox! (see fig. 1). This flower had no hint of red except for the vermilion star surrounding the yellow eye. We soon found more and realized there was considerable variation in the color of the streaks forming the star, the size of the flowers and the shape of the petals. One plant had long, narrow petals and brownish streaks almost forming "V's" around the eye. It also became apparent that this patch was very extensive, but only a few flowers were in bloom and most of these were damaged by insects and weather. Furthermore, most of the seed capsules had shed their seed leaving the characteristic, star-shaped calyx with its reflexed sepals staring apologetically up at us. After a long search we found only twenty-seven capsules bearing seed out of the thousands of plants we examined.

The earth here was also a loam covered with a large array of grasses and numerous flowering plants, including the seed pods of *Calochortus barbatus* and a small *Sisyrinchium*. Against small rock outcroppings there were several ferns: *Bommeria hispida*, *Cheilanthes wrightii*, *Notholaena aurea* and *Pellaea ternifolia*. The loam while rich and dark in color is also rocky, especially near the lake. The phloxes seemed to be more luxuriant and vigorous when they were growing well above the shoreline of the lake mingled with the taller clumps of grasses. But many plants were found more or less in the open along with small plants of different species. The phloxes were not



Fig. 1
Phlox lutea



Fig. 2 — *Phlox purpurea* x *lutea*

evenly distributed over this area of several acres, but would occur in patches. These patches could be extremely dense with several hundred shoots growing in an area of perhaps a square yard.

Both the red and yellow varieties vary tremendously in size, depending apparently on moisture and soil compaction. Plants which superficially look like seedlings might be only ten centimeters (four inches) or less tall while others interspersed with taller grasses and growing in loose, humus-rich soil could be over forty centimeters (ten inches) tall. We dug up sample plants here and also at the red phlox site west of Cuauhtemoc. The root structure of the two forms is virtually identical. Below ground the stems of both forms are noded, fleshy and brittle. They run more or less straight down. At almost any depth from one hundred millimeters (four inches) to about two hundred and fifty millimeters (ten inches) branches usually occurred. When these were traced upward they would emerge from the soil forming leafy stalks bearing flowers or traces of them. At deeper levels transverse rhizomes were frequently found. These were slender and brittle, making it difficult to follow them; but they appeared to run a hundred to a hundred and fifty millimeters (four to six inches) towards other caudices (vertical rhizomes) which in turn would branch as they rose upwards. Frequently, in wet soil, caudices developed a complicated tuft of roots five to ten millimeters below the surface. These thin, horizontal roots would run out fifty to sixty millimeters (two to two and three-quarter inches), and are undoubtedly deciduous, drying up during the dry season only to develop again with the onset of the rains.

The stems of both the yellow and red phlox are glandular pubescent, but

not densely so. The glands are minute and the hairs less than .5 millimeter in length. The linear leaves are distinctly different from those of *P. mesoleuca* to which presumably these phlox are closely related. The longest leaves of an average sized stem of two hundred and fifty to three hundred millimeters (ten to twelve inches) tall are found at the third, fourth and fifth internodes above the ground and the distances between these nodes are thirteen to sixteen millimeters. Above the fifth node the leaves, which are opposite, rapidly become shorter as do the internodes until the stem becomes virtually invisible and is hidden by these almost imbricate leaves. The leaves themselves are thick, sturdy and show little tendency to arch away from the stem. They appear surprisingly slender; but the percentage of width to length in a few of the leaves measured in the yellow phlox is 5.4 percent, that of the red is 7.2 percent and of *P. mesoleuca* 8.5 percent. The length of the leaves varies according to the size of the plant. The leaves at the third, fourth and fifth nodes of two stalks of the red phlox, for instance, averaged fifty-seven and forty-four millimeters respectively, in contrast to the short leaves of a type specimen of *mesoleuca* which averaged only twenty-seven millimeters in length. The leaves of the yellow phlox seem shorter than those of the red, but this may be more apparent than real. A distinctive feature of these leaves is that the upper surface is glabrous while the lower surface is densely glandular-pubescent.

The calyx of both the yellow and red phloxes is about seven eighths the length of the corolla tube. The subulate sepals are fused for about half their length and the intersepalate membranes are smooth. The bases of the calyces

are densely glandular-pubescent; but the tips are much less so. As the fruit matures the tips of the sepals roll back exposing the plump pointed capsules, but after the capsules and seeds are shed, these outwardly curled sepals dry up and persist as a star shaped structure for a long time.

The corolla tube is about fifteen millimeters long but varies with the size of the flower. It is glandular-pubescent throughout its length; but far more sparingly so than the sepals. The petal blades are basically suborbiculate but there is considerable variation in their shape. They are, however, never notched nor apiculate. The flowers are large, in some the limb measures as much as thirty-two millimeters across, but the scape is extremely variable in length, varying from a few millimeters to more than forty.

The seed of these phlox was difficult to collect in September and again in October. Twelve capsules of the red phlox were harvested in September, but only four of these contained seeds, ten in all, and three of these are shrivelled or so small that it is extremely unlikely that they will be fertile. In October two lots of seed were collected of the yellow phlox. Two capsules contained a total of nineteen small seeds while twenty-five capsules collected over a large area contained sixty-eight seeds. In this second lot there were 2.7 seeds per capsule. More than half of the seeds are asymmetrical as though two seeds had developed within a single locule, pressing against each other during growth so that a normally symmetrical seed appears truncated. The symmetrical seeds look like segments of an orange with only three segments. In these instances one can imagine a single seed per locule with the typical tricarpetate phlox arrangement. The medial faces of each seed make up a

dihedral angle with a short groove at the center of the crest of the angle. The outer face is curved, conforming to the elongate outer wall of the locules. Around the periphery of this face the seed coat is produced into a thin, translucent phlange about .1 millimeter high. Similar phlanges also occur wherever sharp angles exist in irregularly truncated seeds. The entire seed appears wrinkled like the gyri and sulci of a brain, except that the sulci are concave at their bottoms instead of forming tight grooves. In ten symmetrical seeds from yellow flowered plants the seeds averaged 3.7 millimeters in length, 2.0 millimeters in width, and about .5 millimeter thick. Only four of the ten seeds of the red-flowered plants are symmetrical. These average 3.3 millimeters in length and 1.9 millimeters in width.

Morphologically the red and yellow phloxes we found in the vicinity of Cuahtemoc seem indistinguishable. What differences one finds seem to be too variable to be diagnostic. The only real difference seems to be the color of the flowers.

Brand never saw the living plants of the forms he named nor had any other botanist, so far as I am aware, until July 27, 1977 when Dr. Robert Bye, an Ethno-botanist from the Department of Biology of the University of Colorado, found specimens of *Phlox purpurea* along Highway 16 about Kilometer 122 on a north facing hillside forested with oaks and pines. He also noted similar phloxes south of La Junta where the plains give way to a cut-over pine forest area. These sites are similar to the one some ten miles southwest of Guerrero near Tonachie where Pringle found the phlox Brand later called *P. purpurea*. Bye's notes, on the University of Colorado Herbarium sheet No. 310040, state that the flowers were red-

pink. Bye's site is some forty-five miles southeast of the type locality but the plants undoubtedly represent the same taxon. The Pringle Herbarium at the University of Vermont kindly loaned me their type sheet of *Phlox nana*, Pringle No. 1334, the form Brand later called *P. eu-nana purpurea*. The larger of the two plants on the sheet is huge with some leaves measuring as much as ninety millimeters (three and a half inches) in length, the internodes near the tips of the flower shoots much longer, clearly visible and not ensheathed by the leaves. Basically, however, the plant is very similar to those collected by Bye. Bye's specimens also are virtually identical, except in color, to the forms we found.

The yellow phlox was not found again until we rediscovered it on October 25, 1978. It now appears that the red phloxes (fig. 2) occurring at the site three miles west of Cuauhtemoc must represent hybrids as does the yellow phlox, red-tinted on the petal tips, found at the same locality. Also in this swarm two other flowers were found of an orange color. The question arises as to how to treat these forms from a nomenclatural point of view.

While they are clearly Protophloxes, Section A of Wherry, and members of the Subsection 3, Nanae, they are distinctly different from all other members of the group. I believe a reasonable procedure would be to retain Brand's names but to raise their states from variety to species.*

For the moment Wherry's key (1955, p. 31) can be modified to read from alternative D,D' as follows:

D. Nodes few, not conspicuously

crowded towards the tips of the shoots; corolla tube pubescent or glabrous; leaves widely spreading or recurved, linear, short (less than thirty-five millimeters long); root system rhizomatous, fairly shallowly disposed (ten or fifteen millimeters deep) — E,E'

D' Nodes numerous, crowded towards the tips of the shoots; corolla tube glandular pubescent, leaves linear, nearly straight, not recurving — F,F'

E Corolla tube pubescent — *P. m. mesoleuca*

E' Corolla tube glabrous — *P. m. ensifolia*

F Roots consisting of true roots, that is without nodes, upper leaves and stems heavily glandular pubescent both above and below, sticky, most upper leaves alternate. Corolla tube twice as long as sepals — *P. nana*

F' Roots rhizomatous, leaves and stems moderately to slightly glandular pubescent, no pubescence on upper surface of leaves, only extreme upper leaves alternate, corolla tube as long as, or slightly longer than sepals, G, G'

G Roots rhizomatous, relatively shallow (100-150 mm. deep) flowers red-pink; eye pink or pinkish white** — *P. purpurea*

G' Roots vertically rhizomatous with deeply located transverse rhizomes, flower color yellow, eye yellow — *P. lutea*

I wish to acknowledge the assistance given me by my wife who helped drive and collect on my first expedition; Dr. William A. Weber, who permitted me access to the University of Colorado Herbarium and library; Panayoti

* *Phlox purpurea* (Brand) Maslin, based upon *Phlox nana* var. *purpurea* Brand, in Pflanz. 4:250:76. 1907, *Comb.nov.* *Phlox lutea* (Brand) Maslin, based upon *Phlox nana* var. *lutea* Brand, in Pflanz. 4:250:76. 1907, *Comb.nov.*

**A close examination of the dry specimens collected by Bye shows that the eye is pale and shows no evidence of the strong yellow pigment found in *P. lutea* or the red hybrids collected west of Cuauhtemoc.

Callas, who attended me on the second expedition and worked indefatigably collecting and driving under the most difficult conditions; Dr. Robert Bye, who provided me with information regarding the morphology and ecology

of *Phlox purpurea*; and especially to the members of the American Rock Garden Society who privately raised, through individual subscriptions, money enough to reproduce in color the plates accompanying this paper.

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THREE OLD-TIMERS

JOAN MEANS

Georgetown, Massachusetts

Three of the most satisfactory plants in my small rock garden are not seen very often on garden tours, though asperulas, androsaces and gentians may abound. Yet these three are highly touted in rock-gardening books and are easy to obtain. Surely many beginners must have tried them early on, only to lose them? And indeed, all three have the reputation for being rather short-lived. Since we have had these charmers since we started serious rock-gardening in 1972, I shall stick my neck out and tell how we grow them.

Dianthus alpinus was a pretty picture on a seed packet in a Swiss store when we decided to bring it home as a souvenir of our ski trip. The seeds duly sprouted and grew, and, lacking

any books on rock gardening, I consulted an illustrated encyclopedia. The plants pictured were about two inches in diameter, and I figured that six inches apart was more than enough space for my seedlings. Ever since, I have had to thin my plants (some now measure eighteen inches across) by transplanting them to other parts of the garden. It is a process they are not wild about, but they recover ninety per cent of the time. In June, they are covered with huge deep pink flowers on short stems; the rest of the year they are attractive ground-hugging mats of dark green foliage.

The dianthus grows in a sloping garden situated close to the house and shaded from noon on by tall white

pinus just to the southwest. The natural soil is sand and gravel of commercial grade (there were working gravel pits close by our property). This was enriched with compost and rotted cow manure when we built the garden by setting the local, round glacial boulders here and there. They are not lovely rocks, but in most cases are covered by plants, including the dianthus. The natural acidity of the soil is about pH 4.5, which is certainly not altered by the top covering of crushed granite. *D. alpinus* doesn't seem to mind at all, though some experts call it lime-loving. *Lewisia cotyledon* and *L. tweedyi*, which definitely like acid soil, are fat and happily blooming in the same area as the dianthus.

Besides sharp drainage and shade during the hot part of the day, I give the dianthus what I believe are two other advantages. Immediately after flowering, I deadhead the mats, except for a few seedpods allowed to ripen for the seed exchange. Originally, this was done for the sake of neatness, and because I had been taught to do so in the perennial border. But I believe that deadheading in the rock garden does save plant energy and prolongs longevity. The price paid, of course, is that there are no self-sown seedlings. At the same time, I top-dress the plants with a mix of fine gravel ("chicken grits," obtainable at farm stores), compost, bone-meal and a bit of blood meal. I have never seen *D. alpinus* growing in the wild, but I have observed that mountainsides are unstable places where plants are constantly barged by sliding rock, etc. I figure that this is nature's way of caring for plants that don't have a gardener to divide them or top-dress them. I have not yet tried to divide a mat of *Dianthus alpinus*, but plants I have moved have shown fine roots on the mat's periphery,

as well as the central root mass.

Providing an artificial landslide seems to be the answer for *Aster alpinus*, which in 1972 was another pretty picture on a Swiss seed packet. I remember that shortly after the seeds had sprouted, we attended our first ARGS unit meeting. Wondering if I was nurturing a vicious ramper, I asked an expert: "Is *Aster alpinus* a nice plant?" "Oh, yes, lovely," he replied. "But I'm afraid it isn't very long-lived." I was devastated.

Now, six years later, I believe I can disagree with that expert. *A. alpinus* does not send out underground stolons, as so many garden asters do. Instead, the rather woody flowering shoots elongate at the surface of the ground. By top-dressing annually, roots are encouraged to form, and the mats thicken, with no bare centers. Every three or four years, the plants should be lifted and divided. Treated thus, I see no reason why one shouldn't have *Aster alpinus* forever, with bunches of this pleasant plant to give away.

The third of my old-timers is *Iris reticulata*, a bulbous plant which opens spidery purple blossoms as the last snow melts. It is, reputedly, hard to keep but I shall have to divide my clumps this year. I find it very hard, actually, to place in the garden, since the leaves elongate to eighteen inches or more in June. Since I also tend to forget where I have planted bulbs, the result is that other seedlings planted in fall have gone in on top, or next, to the iris, resulting in an aesthetic mess.

Most expert advice on growing *Iris reticulata* suggests giving it a hot, dry, sunny place with perfect drainage. My iris get the drainage, but hot? dry? They are in the same garden with the dianthus and asters, but to the slightly shadier, western side, growing among Auricula Primroses, *Gentiana scabra*,

and a ground cover of *Androsace sarmentosa*. The entire garden is watered frequently during the summer. The iris don't care.

To digress slightly, I'd like to underline the importance of drainage to some bulbs by pointing out that in the perennial border — composed of the same sand and gravel as the rock garden but enriched with enormously more compost, manure and peat — tulip bulbs split but then grow again into big bulbs, so they never "run out." On the other hand, daffodils do not flourish as I'd like — they obviously prefer a heavier, wetter soil.

What about *Iris danfordiae*? Alas,

it has gone downhill for me, as for other gardeners, and for the past two years has been but a clump of grassy foliage with no flowers. I am leaving it, curious to see how long it takes to produce flowering-size bulbs again. They say *Iris winowgradowii* is a yellow bulbous plant which is less prone to splitting. Perhaps someday I shall have a chance to test it for myself.

Sharp drainage. Light shade during the hot part of the day. An annual top-dressing. The experts must be yawning, for these aren't secrets — they are the basic tools for successfully growing rock-garden plants. At least they have worked for me!

Vitaliana (Gregoria)

A gardener's impression of *Vitaliana primuliflora*, the European counterpart of douglasia and at one time assigned to this genus as *Douglasia vitaliana*, is of a most attractive and desirable, stable yellow-flowered cushion polster plant for the scree, some forms said to be more floriferous than others. The botanist, however, may have quite a different impression, one we might regard with some attention. *Flora Europaea* Vol. 3, p. 20 (Cambridge 1972) accords no less than five subspecies differing not only in geographical range but in details of leaf, pubescence and flower size as well.

This monotypic genus ranges through mountains of Spain, the Pyrenees, through the Alps and to the Apennines. The form usually referred to in horticulture as the most reliably floriferous is *V.p. ssp. praetutiana* from the Apennines; however, its flowers do not begin

to compare in size with those reported for *ssp. cinerea* of the central and western Alps and the Pyrenees, with flowers as much as twice the size of any other. Perhaps a very worthwhile project would be the assembling together of a collection of the better representatives of this plant with the object of breeding for individuals that might surpass all the wild forms. Although it would seem that such plantsmen as Suendermann and Correvon must certainly have already done this, we find no such plant in horticulture, other than *V.p. praetutiana* of course.

These matters of the natural variation apparently do not affect the color, a constant clear yellow, certainly the one good reason it is yet retained within its own genus rather than submerged in androsace. To Linnaeus it was a primula.

Roy Davidson, Seattle, Wash.

KURT BAASCH'S PHOTOGRAPHS

Photographs by Mr. Baasch

The American Rock Garden Society has recently been the fortunate recipient of a gift of over one hundred photographs by the late Kurt Baasch of Baldwin, L.I., N.Y. given to the society by his widow.

an alpine frame.

His garden, the meticulous and artistic effort of over forty years, was the wonder and envy of all who knew it. In it, grown to perfection and each placed with consummate skill, were



The photographs are exquisite black and white portrayals of Mr. Baasch's garden and the flowers that inhabited it, for in addition to being a very skillful photographer, well known in this field, Mr. Baasch was an enthusiastic plantsman. He was a charter member of the ARGS and served as a director from 1944 until his death in 1964. He contributed to the ARGS Bulletin many of his beautiful photographs and a number of articles, the last one on growing saxifrages in

many rare and beautiful rock plants. It also contained a number of dwarf and slow growing conifers, a group of plants in which Mr. Baasch took a great interest long before the present enthusiasm for these small trees. But despite his great love for his plants, Mr. Baasch never hesitated to remove one, no matter how precious, if it threatened to outgrow its designated spot. These were frequently turned over as gifts to friends with larger gardens along with other horticultural treasures.



It is indeed fitting that the memory of this remarkable and generous gardener will now be perpetuated, through the generosity of his wife, by his peerless photographs of the plants and

garden he loved so well. They will appear from time to time in the pages of the Bulletin and will be exhibited at ARGS meetings.

Unorthodox Cutting Method

A member writes in that she has successfully used this unorthodox method of rooting cuttings: In some convenient shady spot that is near enough to the front of the garden to always command my attention for watering, covering and uncovering. I dig a small trench about three to four inches deep and about six inches long. I fill this with a mixture of half peat, half sand and in it set cuttings from two to five inches long. As the trench is in a semi shaded spot it does not matter if I remember to cover and uncover but it is necessary to remember to keep the cuttings moist, not wet. I have had from fifty to one hundred percent success with such things as dwarf box, heathers, evergreens and rhododendrons.

A SANDY GARDEN

Part II

PAM HARPER

Seaford, Virginia

Part I of this article appeared in Vol. 36, No. 1.

Continuing our stroll round the pine dotted island bed encircled by the driveway, we come to the east facing side and the best growing conditions in the whole two acres. Through the 90°F. of July and August the soil here stays moist for two weeks, as against three days on the sunny side. Most gardeners, I think, have a spiritual home, often striving to recreate it in miniature where circumstances dump them down, be it mountains, seashore or desert. For me it is woodland and shade loving plants. New plants with needs unknown go in this east facing bed. They may, with leaning stems and attenuated growth, signal a need for more sunshine, but they rarely die. One exception was *Shortia galacifolia*, odd clumps of which were doing well where temporarily planted in places sunnier than generally considered desirable, the soil improved only by the addition of a little peat. How superb they would look, I thought, gathered together in this east facing bed. I did this and they died. There were two lessons here to be learned (three if you include "let well alone"!): . . . (1) *Shortia galacifolia* likes poor soil, (2) in this garden moving things between May and September is apt to be fatal. Oconee Bells is now successfully re-established at the base of *Gordonia lasianthus* against a north house wall, but lesson two is still sometimes forgotten. Last week (June) a clump of butterfly weed

planted last fall came into bloom earlier in the season than anticipated, creating in conjunction with a bright pink azalea ('Chinsai') a cacophony of color not even temporarily to be endured. All my gardening days I have, with few losses, shuttled plants around within the gardens whenever the spirit moved me. But I gardened before on clay and in cooler climes.

Barnhaven Acaulis Primroses occupy a disproportionate amount of space in this favored spot, as they do in my affections. One packet of "mixed double" seed produced some twenty quite different flowers, singles and doubles in white, cream, yellow, pink, red and purple. They do so well that splitting them every other spring and finding fresh quarters for the divisions is becoming a major operation. Gradually they will be planted in single color drifts, the first of these in white, backed by the white narcissus 'Thalia' beneath a dogwood. *Primula acaulis* is evergreen here, the first flowers come soon after Christmas and they continue for nearly three months. They are backed by evergreen azaleas, into one of which I am trying to grow that most delicate of vines, *Tropaeolum speciosum*, the nasturtium flowers resembling flights of tiny scarlet swallows. It has survived two bad winters and one dry summer, no flowers yet, but while there's life there's hope.

Camporosorus rhizophyllus is doing its

thing, walking slowly along the front of this brick-edged bed. Though often found on limestone, it is in no way dissatisfied with our pH5. *Andromeda polifolia* flowered well for several years and is now growing again vigorously after being razed to the ground by rabbits last winter. *Gentiana septemfida*, three years old, ought to flower this year.

Tiarella cordifolia keeps company with *T. trifoliata*, several supposed *wherryi* and now, at last, the real one. Blue bugled *Meehania cordata*, fairly neat and compact, seems to need shade and moisture. The Japanese *M. urticifolia*, on the other hand, spreads as rampantly as did *Lamium galeobdolen* 'Variegatum', which in habit and leaf shape it much resembles.

Three tiny leaved plants grow side by side. The smallest and most pungent mint, *Mentha requienii*, is evergreen most years. Occasionally it is killed, but ample seedlings germinate the following spring. *Hypericum yakusimense* is a bright green mat sprinkled with minute yellow flowers. This, too, self seeds abundantly. Latest acquisition is *Lysimachia nummularia* 'Minutissima'. Anyone who has had Creeping Charlie (Creeping Jenny in England) take over their garden is likely to be wary even of dwarf forms. Do not fear this one, it makes neat little mounds of close packed quarter-inch leaves, thickly studded in May and June with yellow flowers of the same proportions.

Further back among the shrubs grow hellebores, with *H. orientalis* the star performer in this locality, always flowering before *H. niger*. At the front is *Ophiopogon planiscapus* 'Nigrescens', dark purple leaved, but it does not look at ease in this leaf mulched setting, seeming to ask for more formal surroundings. *Pieris phillyreaefolia* is unlike other

members of its genus in that it suckers, popping up here and there in much the same manner as *Gaylussacia brachycera* and *Gaultheria procumbens*. It grows about fifteen inches high, with leaves and white urns a little smaller than those of *P. japonica*.

English gardeners, with space at a premium, extract maximum mileage from every patch of ground. I now have rather more land than I can get under control but I still garden in the same way, planting bulbs under carpeters, letting vines ramble through trees and shrubs, and putting together for successional effect any two or more plants willing to grow in harmonious double harness. *Begonia evansiana* rises up in May where *Scilla sibirica* flowered two months earlier; white spathed *Zantedeschia* 'Croborough' hides the drying leaves of *Chionodoxa*, and the snowy purity of double bloodroot flowers remains unsullied over a mat of fernily evergreen *Cotula squalida*. The little *Hosta venusta* appears as *Anemone blanda* 'Atrocoerulea' withers away, and late flowering *Hosta tardiflora* similarly shares with *Anemone appenina* and *A. nemorosa* 'Allenii'. Through the evergreen leaves of winter flowering *Viola odorata*, so sweetly scented, emerges in May, to flower for a month, the hardy (here) orchid, *Bletilla hyacintha* (*Bletia striata*), of which I have the purple, a white with plain green leaf and a white with white-edged leaf. *Lilium canadense* keeps company with *Ipheion uniflorum* 'Wisley Blue', and yellow lily 'Prosperity' with *Campanula portenschlagiana*. A successful triumvirate consists first of snowdrops, then *Fritillaria meleagris* 'Aphrodite', and finally that most admired of ferns *Athyrium goeringianum* 'Pictum' (*A. nipponicum metallicum*). An unintended marriage is that of *Campanula*

poscharskiana with *Asarum europaeum*. The campanula was here first but grew too rampantly and was moved to poorer quarters (where it died), its place allocated to the last scraps of ginger rescued from under a juniper hedge, where it had diminished almost to extinction. A scrap of campanula root remained and two years later a dozen long strands of blue stars trail over the glossy greenness of the ginger. They seem to be fighting it out on equal terms. *A. europaeum* spreads rapidly in a deep, moist soil and partial shade.

Our first year in America we built a house in Connecticut. Between bouts of mortar mixing I would wander off into the woodland to see what I could find. "It's a weed", said our carpenter, asked to identify *Maianthemum canadense*. With this began a love affair with the wild flowers sometimes pursued with too little discrimination. *Hydrocotyle americana* is my latest indiscretion. The circular leaves, dark green, polished and scalloped, are very pretty, but Pennywort will not grow in dry soil. In the precious moist patches it spreads as you watch it.

Of moist shade I cannot have enough. Dry shade is another matter. On the north side of a very large, very lovely and very thirsty triple-trunked water oak (*Quercus nigra*) is another island bed. Plants listed in gardening books as suitable for dry soil are either sun-needing xerophytes or those tap rooted ones which search deep for moisture. Under large trees the deeper you go the drier the soil becomes. Nature points the way, spreading each fall a surface layer of mulch in which *shallow* rooting plants stay one step ahead of the tree roots moving ever upward. *Saxifraga stolonifera* failed here but my most tolerant dry shade plant looks like a close relation, the flowers of the same diptera type, the leaves

similarly shaped and fleshy but plain green, the whole plant smaller and more compact. It came from a plant exchange labelled *Saxifraga veitchiana*. Hardy cyclamen, rooting from top and sides, care little about what is underneath provided it is not wet. *C. xapolitanum* gets a little sun coming in from the east, *C. europaeum* late afternoon sun from the west. *C. repandum* is also being tried here, having proved hardy but not happy elsewhere.

A one-upmanship of woe comes into being when gardeners swop lists of pests over which they have triumphed . . . or not. Along with rabbits, moles, squirrels, visiting dogs and careless drivers we have box turtles and ducks. The mallards have mated with white domestic ducks to produce some interesting hybrid progeny of piebald plumage, a joy to watch gliding over the pellucid waters of the creek at dawn, and comical when they take a shower under the summer sprinklers or land on the frozen creek to skid and wobble like skating clowns. Bliss rarely comes unalloyed. Summer nights are punctuated by bursts of maniacal mallard laughter, and the fragile etiolated petioles of cyclamen, pale and lax under an inch of rotted leaves, are easily severed by clumsy feet and prodding bills as the ducks delve for acorns or whatever. Black plastic netting pegged flat on the surface has rendered them less vulnerable and it is almost invisible, completely so when flowers and leaves rise up through it, but it has not prevented something (culprit as yet unidentified) neatly decapitating each opening bud.

By husbandly dictate onions are taboo in the Harper kitchen (a quid pro quo for my own dislike of tobacco in the bedroom), but in the garden quite a few are scattered around. Most are in sun, but here in near total shade

the swan-necked *Allium cernuum* flowers in early June. A variegated solomon's seal, *Polygonatum japonicum* 'Variegatum' grows sturdily; it gets strong light but no sun. Here are more gingers, the west coast *A. hartwegii* with leaves rather like *Cyclamen neapolitanum* but less strongly patterned. This is a spreader, as also is my smallest and most attractive ginger, to be known, I believe, as *Asarum shuttleworthii* 'Callaway'. The leaf, almost round and 1½" across is a beautifully patterned bright glossy green. Equally attractive, on a larger scale, are the foot round clumps (this one is not a creeper) of *A. virginicum*, the leaves, two to three inches in size, are similarly patterned but less glossy and with more silver in the patterning. The largest one, *A. arifolium*, is clump forming and increases very slowly. Great six inch triangular (leaves are prettily patterned but lack the shine of the other kinds. *Ardisia japonica* is another of those underground creepers which pops up way out from the parent plant. Whorls of polished, bright green narrowly elliptic leaves make attractive ground cover. In richer soil it can be one foot in height but mine is mere inches and has not yet borne any bright red berries. Here, too, is a special treasure, *Anemonella thalictroides* 'Cameo', a double of pale, delicate pink. This flowers for a month in April and May before the oak comes into leaf. Next to it is a similar plant, *Isopyrum biternatum*, but this is a newcomer as yet — let us not count our chickens

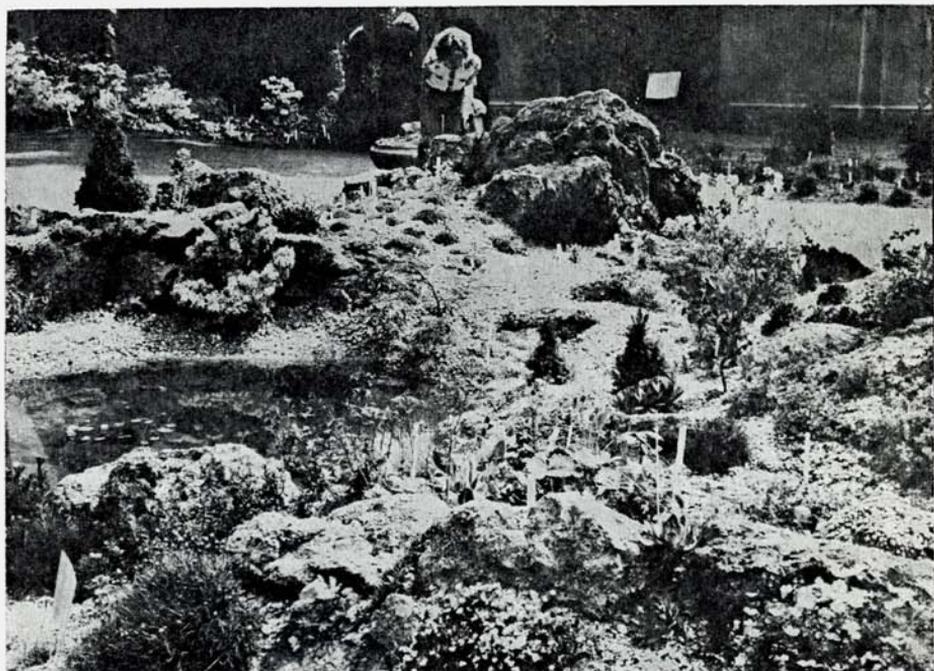
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Another raised bed lies to the south of this oak, planted mainly with Gumpo azaleas. *Rosa* 'New Dawn' climbs into a small holly tree, exactly matching the coloring of 'Pink Gumpo'

('Yugiri'). This bed is sunny at present but the Gumpos need shade and this they will have in a year or two when some newly planted pines get a little bigger. Over one of the white Gumpos *Clematis x durandii* is starting to ramble. It would rather head in another direction but with persistence and a few twistems I am bending its will to mine. More showy than most species, subtler than the hybrids, this *jackmanii x integrifolia* hybrid, a sprawler, not a climber, has a refinement well suited to a rock garden setting. The color, dark but bright, comes at that point on the RHS chart where violet switches to violet-blue. Four or five sepals, two inches long, are relatively slender, widely spaced, slightly twisted and deeply ridged down the center. "You didn't say that clematis need lime", wrote a nurseryman who read one of my articles. I know that every gardening book, past and present, suggests this to be so but my own experience and that of friends does not bear it out. Apart from clematis I have met with only one plant which climbs by twisted leaf petiole, *Maurandya barclaiana*, another scrambler to grow into small shrubs (*Chamaedaphne calyculata* 'Nana' in my case). Violet blue labiate flowers come in late August, an invaluable trait in this early southern garden, but it is not winter hardy here and must be grown as an annual. In this garden I have failed with *Kalmia latifolia*. I think I killed them with kindness, too much summer watering and too rich a soil. Neighbours who have done no more than dig a hole and dump them in have them growing healthily. But on the edge of this Gumpo bed *Kalmia hirsuta* looks well. It has not yet flowered, a pleasure eagerly anticipated.

Czech Rock Garden Show

Photograph by J. Starek, Prague, Czechoslovakia



The Czechoslovakian Rock Garden Club, an affiliate of ARGS, set up for its May 1978 Show in Prague a naturalistic rock garden built in an outdoor court where it was viewed by 13,000 visitors.

Zdenek Zvolanek, as Head Arranger, carried the entire responsibility for designing and building the garden. The Club's weathered granite rocks, originally transported from the Jizerske Hory Mountains and used many times in other shows, were arranged in a series of outcrops around two small pools. It took Mr. Zvolanek, assisted by Joseph Halda, three days to build the garden. The photograph shows only a small portion of it.

The pools were lined with asphalt concealed beneath a layer of stone chips

and small rocks and the outcrops were tied into a harmonious whole by the skillful placement of dwarf Mugo Pines. All the conifers, of which there were a number of varieties, were planted by Peter Herynek of the Botanical Garden of Prague. Groupings of American and New Zealand plants were arranged on two separate outcrops.

The wide selection of plants, many in perfect flower, were mostly in pots concealed beneath the surface mulch of granite chips, but some were tucked directly into rock crevices. One section was laid out as a small meadow with drifts of *Gentiana acaulis* in full bloom among tufts of *Festuca glacialis*.

Congratulations to our Czech members.

THE ROCK FERNS, A Baker's Dozen Not So Familiar

KAY BOYDSTON
Niles, Michigan

This is the second in a series of three articles on rock ferns written originally by Mrs. Boydston for "Fernwood Notes," the publication put out by Fernwood, Inc., a garden and nature preserve established by Mr. and Mrs. Boydston at their home in Niles, Michigan. These articles describe the rock ferns to be found on a stroll along the Fern Trail in this extensive garden.

The first article published in the ARGS Bulletin Vol. 35, p. 141, covered a dozen familiar rock ferns: the rare harts tongue, a cliff brake, the common polypody, two bladder ferns, two aspleniums, the walking fern, three maidenhair ferns, and a tiny form of the lady-fern. — Ed.

The thirteen forms to be considered in this second article include a few now at home at Fernwood which should be familiar to all, a few still on trial and others not yet planted but hopefully to become future residents and familiar, too. Again, their silhouettes appear (half natural size), but instead of being numbered 1 to 13 we have continued from the first article so these carry the numbers 13 to 25. This was done because the next article will continually refer to the ferns of the first two. Brief non-technical stories and descriptions follow the numbers as given:

13. *Woodsia obtusa*, the Obtuse or Blunt-lobed Woodsia. According to Clute, the genus *Woodsia* was so named in honor of the English botanist, Joseph

Woods. It contains about a dozen species, most of them living in the colder climates. Although Obtuse Woodsia is said to be the commonest one of eastern North America, in Michigan it is known from only Kewenau county. It prefers rocky habitats, especially shady ledges and loose talus and we found it in just such a place on the New York fern trip, the only time I have seen it in its native home. I regret now that it was not exciting at the time. It didn't seem like a rock fern — too large for this, with a six to twelve inch frond. Then (and since) it was mistaken for a Fragile Fern (*Cystopteris fragilis*). They are really look-alikes but closer observation shows one difference to be in the blunt tip of pinnules and frond of this Woodsia. The small sori are round at first and later split into star-shapes — a bit of perfection and beauty when viewed through a hand lens. Said by Dr. Wherry to be "readily grown in rock garden or open woods," I feel remiss that little effort has ever been made to find sources of plants or spores to produce a small colony somewhere in the Fernwood woods. This will be corrected.

14. *Woodsia ilvensis*, the Rusty Woodsia, smaller and more attractive, has held a quite different place in our fern affections and several times, a dozen or so have been tucked in by sandstone rocks in our "acid annex," the little corner east of the rock garden. Known to prefer this acid condition of rocks and soil, there was something



we did not furnish to its liking for it never stayed more than two to three years. Probably it was too shady or perhaps too dry. To quote again from Dr. Wherry's guide, "Habitat, dry and less often moist crevice in cliffs, ledges and talus slopes; frequently in sunny situations; known on almost all kinds of rocks except limestone; soil subacid." The eastern source of the plants tried is no longer in business or we'd be trying again. An attractive and different little fern, it is worth reordering every few years.

In young growth the underside of its fronds is densely woolly and silvery with the hairlike scales, a striking feature. This later turns to a rusty brown from which the common name is taken. Sori can hardly be seen in this thick coat. On our Michigan trip we came upon many of these little ferns in an unlikely place never forgotten — certainly one of the "less often moist habitats." On large boulders splashed and surrounded by a swift northern Michigan stream, these little ferns could be seen in small numbers matted together and wedged into unseen cracks in the boulders — in full sun but dampened by the spray — an unforgettable sight.

15. *Gymnocarpium dryopteris*, or *Dryopteris disjuncta*, or *Phegopteris dryopteris*, the Oak Fern. Too bad to force so many changes of tongue-twisting names on a fern so dainty and different. These are only three of twice as many or more by which this fern has been known in the years of my fern interest. Different authors and nurserymen elect to use different names with no agreement whatever. Letting the experts argue this as they wish, we can turn attention to the fern itself. From the slender creeping rootstock, dainty three-part fronds are produced through the whole season. The stipe

is longer than the blade. Delicate, fresh, light green in color, it is one fern we have long coveted for Fernwood but had the mistaken notion that it was partial to soil and rocks too acid for us to be able to satisfy it — so postponed the day of trying after an early trial of a few in the woods proved a failure. Now it is good to report new small but spreading patches in two locations. A few purchased last fall and kept over winter in the cold frame were ready for early planting this spring. Planted in a corner of the "acid annex," in the ensuing unseasonable hot dry days many a sprinkling can of water has been carried to them. At the present time they seem to be taking hold.

A larger number were later planted near, but not on, the Hagenah memorial outcrop after I read that they would "like cool rocky woods, shaded talus slopes and swamp margins, soil rich in humus, mostly subacid — desirable for a shady rock or woodland garden where soil is cool and damp yet well drained." (Yes, Dr. Wherry's advice again.) Two places near the outcrop offered these conditions and the little roots were planted with confidence but so many days of dreadful heat since planting them have made me afraid to check. But today with this report in mind, I summoned courage to do so. How nice it was to see the fronds raising their little balls unrolling to the three divisions. Drainage is sharp, soil is rich and is cooled by the stream just below. They can be easily seen but are out of danger of being stepped on. They should furnish one more small fern pleasure for interested visitors.

16. *Phegopteris connectilis* or *Dryopteris phegopteris*, the Long Beech or Northern Beech Fern is another which has survived many conflicting name changes. Thinking this a smaller edition

of our Broad Beech or Southern Beech Fern which has been easy to establish in luxurious spreading patches in the rich leaf mold near the "seat bridge," we were not successful with the first planting of this Long Beech Fern where we wanted to see it. It had different ideas and sulked and sickened.

Last year and this, small colonies have been started in more likely, more rocky places where we can more readily see and care for them, carrying water if necessary until they are established. I can almost hear them muttering to each other, "She finally learned what we want." Sometimes it takes a while.

Fronde of both beech ferns are triangular in shape, this one being longer than broad, the other broader than long. The lowest pair of pinnae point forward and downward, a noticeable characteristic of this fern.

17. *Asplenium montanum*, the Mountain Spleenwort — the first of five more rock spleenworts for this article. (There were three last time.) The rock aspleniums have held for me and others higher and more continuous interest than any others. Included in the Appalachian group are some revelling in limestone and others demanding acid rocks and soil. The many natural hybrids found in the wild have spurred fern students on to continuous effort to try to produce them and others artificially in spore cultures.

The aspleniums in this little group of those most wanted include three from limestone areas and two from acid. The Mountain Spleenwort is one of the latter, a dainty beautiful little fern which might never be happy in the Fernwood tufa rock garden or the lime outcrop, but I keep hoping that it might tolerate conditions which could be made in our "acid annex" if we could ever grow it from spores.

18. *Asplenium pinnatifidum*, the Lob-

ed Spleenwort, prefers the same soil and exposure as *A. montanum* and one or two have been content in this "acid annex" for a good many years. The one here the longest was weaker last year, did not come through the winter but the second is still here after three or four years. Both were tucked under or between sandstone rocks and have furnished fertile fronds for spore planting every year. This asplenium originated as a hybrid between *A. montanum* and the Walking Fern, and does indeed resemble the first in its lobed lower section of the fronds and the latter in the extended top which rarely strikes root. A most attractive little fern we hope to keep — especially as our oft quoted guide calls it "practically impossible."

19. *Asplenium ruta-muraria*, the Wall-rue, usually found in limestone regions in the smallest crevices in dry rocks. A very dainty little fern perhaps more desired than any other, but more persistently refusing to stay long. Perhaps it has never stayed long enough to become really established. A highlighted fern day was one of finding it growing in a limestone gorge in Ohio. With slightly different minute pinnules, it is the form *ohionis*. Right now a purchased tiny plant is growing in the trough. May it like it well enough to stay!

20. *Asplenium ebenoides*, Scott's Spleenwort, is now more often called *Asplenosorus ebenoides*, a famous hybrid of the Ebony Spleenwort, *A. platyneuron*, and the Walking Fern.

21. *Asplenium resiliens*, sometimes called the Black-stemmed Spleenwort, is not in the Appalachian group but a more southern fern superficially resembling the Ebony Spleenwort, *A. platyneuron*. It has been suggested that this might be the better one to be called the "Ebony Spleenwort" for its

stems are truly black. It differs from *A. platyneuron* in being somewhat smaller, in having fertile and sterile fronds of uniform size and especially in having its pinnules in opposite pairs rather than alternate. It is native further south than our part of the country, fronds having been sent to me twice from southern Illinois and in my early fern learning days, this fern was found to be rather abundant near a Virginia home we were visiting and it was gratifying that they could be readily identified by the opposite pairs of pinnules. None of these ferns are now growing at Fernwood but when and if planted spores ever mature, plants will certainly be tried to test their winter hardiness here.

22. *Blechnum penna-marina* — with no common name I can find, is a desirable little rock fern from New Zealand now available from a few specialist nurseries. For a year or two it took half-heartedly to its nook in the rock garden but did not last as well as expected from catalogue descriptions. Who could resist these — it is a “fast spreader,” “amazingly adaptable,” “an easy rock fern”? In the trough it is doing better — an interesting little fern with its tallish, very narrow, tough, evergreen fronds — almost leathery in texture.

23. *Cryptogramma crispera*, Parsley Fern, is well named for the short sterile fronds, especially if thickly numerous, do indeed look like parsley. It is found in our western mountains and in Europe as well.

Although single plants have been tried here several times, appearing at first to be easy, they have always sulked and pined away. Perhaps the reason

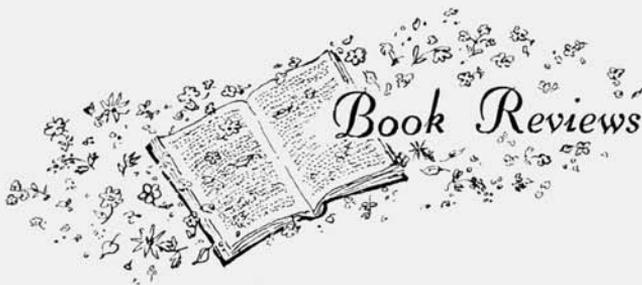
has been recently found in a brief statement by an English author who speaks of this one as a “rabid lime hater.” I have never seen any other catalogue or book mention its need for acid. We'll try this next time.

24. *Cheilanthes*, unknown species. This small frond was taken from one of several of this genus which grew in the trough last year. As it is so small I'll guess that it was from *C. feei*, a miniature long wanted especially after learning that it grows in tight dry limestone crevices as near as Wisconsin. All the cheilanthes species are desirable and different (and for me, difficult). *C. lanosa* was at one time happy for three years or more in the wall, and *C. alabamensis* and silvery *C. tomentosa* tried us out a few times but being more southern in origin, decided against staying.

25. *Asplenium viride*, the Green Spleenwort, will end our story for this time. From more northern homes it is not one of the Appalachians. On the New York trip it was one of the special treats found in Vermont and the next year we found it on Niagara limestone in northern Michigan. It was first found near Pickford and has been collected on Drummond Island.

Superficially it resembles the Maidenhair Spleenwort but their differences are several. This one is less wiry and its rachis is green rather than shiny brown. It appears in western mountains. Its fresh green appearance belies its hardy constitution — a lovely one to have if possible. It does persist in a few rock garden situations but the owners must be good gardeners!

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“Fernwood Notes,” No. 124



JAPANESE MAPLES

by J. D. Vertrees, Timber Press,
1978; Portland, Oregon.
Distributed by ISBS Inc.,
Forest Grove, Oregon. \$39.50

Commodore Perry revealed Japan to the American Government, Mr. Vertrees has enlightened the American gardener to the Japanese Maple. It is not often someone devotes himself to profiling a specific group of plants. It is not an easy task, although Vertrees has accomplished it.

Vertrees makes three definitive statements of purpose and goal in the introduction: "1) to clarify the nomenclature which has become unclear over the years, 2) to provide a guide to the identification of individual cultivars, and 3) to provide information on the history and culture of the Japanese Maple." With consistent style he meets his goals and purposes in 178 beautifully photographed and arranged pages.

The book is divided into five major chapters: History, Taxonomy and Nomenclature, Culture, Propagation, and a list of cultivars and species. A list, mind you, that reads like a flavor chart at Baskin and Robbins, one more tempting than the next. Though the whole book is a gathering of valued information, it is the list of known cultivars that makes the book special. As is the case with most plants that are collected, selected, and reselected,

questions arise as to how do you tell one from the other. Over 250 species and cultivars have been described and photographed to display their distinctive characteristics. More than forty variegated cultivars of *Acer palmatum* alone have been listed. Most impressive! Distinguishing this vast group has been greatly simplified.

Japanese Maples is not an inexpensive book, but it is unique, accurate, and handsome. It would be a valuable resource for anyone interested in this group of plants. There is always a spot in the rock garden for one of the Japanese maples and Vertrees' book will help you select the right one.

— John Trexler

GARDEN CONIFERS IN COLOR

by Brian and Valerie Proudley. 1976
(second edition), Blandford Press, London, represented in USA by Sterling Publishing Co., New York, N.Y. \$5.95

This is a small pocket sized book with many sound suggestions for the use and enjoyment of the five hundred and forty conifers chosen to be discussed. The authors are obviously good horticulturists and have researched their work quite well. Although temperature zones are used in descriptions, it is well to remember that this is written for English gardens. Some of these plants would be more suitable for the damper climate of the West Coast than

for the East and Midwest. For instance, there are so many more *Chamaecyparis lawsoniana* than the *C. obtusa* forms — yet in our experience in New Jersey, many Lawson forms are not too happy in this area, while most of the obtusas are adaptable to the East Coast.

As outlined in the introduction, the first quarter of the book proceeds logically from the history and nomenclature through the uses, needs of the plants, propagation, troubles and growth habits of conifers. Each of the six chapters is broken down into subtitles, making information easy to find.

First: "Conifers and their Names" touches on the binomial system of Linnaeus: subspecies, varieties, forms, hybrids, cultivar names, and clones.

Second: "Conifers in the Garden" covers framing the garden, rock gardens, and different kinds of gardens.

Third: "How to Grow Them" discusses existing soils, specimens, to feed or not to feed, types to select, how to avoid losses, container plants, and collecting quality plants — a number of good points to be remembered.

Fourth: "Propagation" is an introduction to seeds, grafts, cuttings, and propagating material.

Fifth: "Troubles" includes transplanting as well as leaf spot, diseases, and insects.

Sixth and last: "Growth Rate and Ultimate Size" gives very general state-

ments pointing out the effect of siting, soil, etc. By the way, the Proudley's scale for a rock garden is a plant that will reach six by six feet in ten years — not what most of us are used to thinking of as the size for our rock gardens.)

These short chapters cannot, of course, go into great detail: however, they do give a sound overall picture of the subjects and there is a bibliography for further study.

The second quarter of the book has a hundred and eighteen colored pictures of selected specimens — many of them beautiful plants — which the poor color reproduction shows up to very poor advantage. Some of the closeups of the cones are better, but overall there is too much yellow-green and fuzziness. It does seem unfortunate that *Color* was used in the title.

The last half of the book is given to short descriptions of individual plants, often giving origin and other interesting information as well as growth habit. Each family is introduced with some general background for the whole group: origin, uses, appropriate propagation, etc. There is an appendix with a check list of the races, families and genera of conifers, a select bibliography, and an alphabetical index of all plants listed.

A lot of information concisely given in this two hundred page book.

— Hazel Smith

Errata

Vol. 37 (Winter 1979), p. 14, 1st col., lines 30 and 37: "bath house" should read "lath house." On page 20, 1st col., line 10-11: "entertaining" should read "enterprising"; though, as the author pointed out, we are also entertaining, or at least some of us are. Our apologies to Frank Cabot.

THE SMALL-LEAF HOSTAS

A Genus of Delight and Surprise

MRS. RALPH CANNON
Chicago, Illinois

Do you have dappled or heavy shade in your garden? If so, and you are looking for a handsome and versatile plant to grow that has contrasting foliage in shades of green or yellow or is variegated, beautiful in size, shape and texture — then think of hostas. These plants are noted for their hardiness, sturdiness, long-life, minimum maintenance and decorative value. There are many ways in which they can be used: edging, landscape, specimens for small or large gardens, stone walls, ground cover, beside a brook or pond, along a path, and for many other purposes.

The genus *Hosta* was so named to commemorate two Austrian botanists, Joseph Host and Nicolous Thomas Host. Belonging to the Liliaceae family they include many species and many hybrids. Here only the small leaf species and hybrids of this herbaceous perennial will be considered for garden ornament.

We are told that most of the species and some of the hybrids were collected from the wilds of Japan where they are endemic and a few have spun off the Chinese and Korean coasts. The Swedish botanist, Thunberg, described the first hosta known to science in 1780. We have had to rely on the researches of the Japanese for our data on these plants, especially the species, the best monograph being by Fumio Maekawa in 1940 who gave us the most useful classification of this genus. Also, Nils Hylander of Sweden wrote

a fine review in 1954 on "The Genus *Hosta* in Swedish Gardens." Many of the new hybrids in the last ten years have originated in the United States and England.

The basic growing needs of these plants are a humus rich soil with animal manure, sphagnum peat or other organic materials, leaf mold, good drainage and plenty of moisture. They appear indifferent to the degree of soil acidity. I grow mine in woodland soil with only the leaves from the many trees giving them fresh leaf mold every year. They are all of easy culture. They grow in dappled shade, high, or dense. They flower poorly in too dense a shade but their foliage remains handsome. They enjoy good air circulation.

They are best propagated by vegetative off-sets or division, preferably in the spring. Set the division with the buds just below the surface. This is the way to get a true plant because the seed that forms after the bloom fades won't breed true, so a hybrid results. If you have the spirit of experimentation you will hand pollinate the blossoms, allow some seed to form, collect the seed when ripe and plant it the following spring to see what kind of a hybrid you obtained. Controlled pollination is the best way to get a good hybrid. Allow at least three weeks for germination of the seed. Otherwise do not allow the seeds to form after the flowers are spent. Remove the entire stalk and enjoy the foliage. The formation of seed will re-

duce the vitality of the plant.

An interesting habit of hostas is that of throwing bud mutants which are different in color or variegation from the mother plant. Watch for these sports and remove them. It is possible for you to have a new plant.

Hosta leaves have many pattern forms and shapes as well as various shades of color: blue-gray, blue-green, green, yellow, or variegated in either shades of green and yellow or green and white. These variegations may be in the form of margins, lines, splashes, or freckles. Then there are some plants that have yellow leaves in the spring that turn green as the summer advances, and there are yellow ones that remain yellow throughout the growing season. Their textures may be rugose, puckered, veined, seersucker, ribbed or smooth. The shapes may be pointed, blunt, twisted, ruffled, rippled, or cordate.

The lily-like flowers bloom on scapes taller than the leaf mound and range in color from white to pinkish-lavender, deep blue, violet, and light purple. Generally each flower lasts only a day, opening early in the morning and closing in the afternoon before evening. Although grown primarily for foliage many hostas have beautiful flowers.

Pests are few: slugs and snails principally, and possibly some grasshoppers. For slugs and snails use any bait containing metaldehyde or methiocarb. Also useful is a band of wood ashes or sand around the plant. In rainy seasons leaf hoppers can be troublesome.

Since we are interested primarily in the garden value of these hostas, our selective consideration should be what species with their varieties and forms, and what hybrids bearing small leaves are worthy of our survey. The final choice for inclusion depends largely on the availability of these plants.

Descriptions will be brief, emphasizing plant appearance.

Species

Maekawa, in his monograph, divided all hosta species into ten sections. Any of the species having varieties or forms growing in the wild were listed as such. His classification has been followed here.

Most of these small leaf species have been introduced into our gardens from the wilds of Japan by vegetative propagation. There are many growing in American gardens today and they can be obtained from plant nurseries or individuals that specialize in growing hostas. Among the obtainable, alphabetically arranged are:

H. capitata: A small plant, light green, heart shaped leaves. Buds round as a ball. Flowers, light lavender. Blooms in July.

H. clausa: Stoloniferous. Red-purple closed flowers that never open. Leaf mound eight inches, spreading. The flowers drop off without forming any fruit, because they lack pollen or ovules.

H. gracillima: a very small plant. Dark green, shiny leaves with wavy margins, three to four inches long, ovate-lanceolate. Purple flowers in August and September carried well above the foliage. Spreading.

H. helonoides albo-picta: A form of *H. helonoides*. Variegated with white margins on narrow tapering dull green leaves. Flowers are a weak purple in August.

H. kikutii: Dark green leaves, pointed, undulate. Nearly white flowers on scape well above the leaves.

H. kikutii yakusimensis: A variety of *H. kikutii*. A small plant, green leaves, flat growing. Flowers pink-purple.

H. lancifolia kabitan: A form of *H. lancifolia thunbergiana*. Narrow yellow arch-shaped leaves with brilliant green

rims. Eight inch mound. Holds yellow all season.

H. longipes: Green leaves, ovate-cordate, small, pointed, with wavy edges. Petiole slender. Flowers blue-purple. Raceme eight-flowered, lax.

H. longissimo: Green leaves, narrow and long. Flowers rose-purple. Multiple flower stalks from a single crown. Raceme three-flowered.

H. minor: Elliptic green leaves. Flowers lilac on short stems. Funnel shape. Larger than *H. venusta*.

H. nakaiana: Green leaves, erect and heart shaped, three inches long, two inches wide. Petiole keeled and winged. The inflorescence capitate. Flowers clear lilac. Will bloom a second time if seeds are not allowed to develop.

H. rupifraga: One of the rarest. Fleeshy leaves three to five inches long, all radical. Petiole two inches, flower-stem fifteen inches. Raceme dense. Many large purplish flowers. Although collected from an island that has only frosts in winter, my plants have proven hardy in Chicago climate.

H. tardiflora: Maekawa lists as *H. sparsa*. The identity of these two taxa was confirmed by Stern in 1953. Green, shiny leaves, five inches in length, leathery. Blade lanceolate. Petiole short. Flowers numerous and crowded. Lilac in color. Blooms in September-October. Needs some covering in hard winters. Rhizomes creep.

H. venusta: A small plant from Korea and Japan. Leaves green, about three inches long. Petiole slender, winged, canaliculate. Flowering stem twice as long as the leaves. Four to eight flowers on stem. Lilac-violet in color in June-July. Makes a low mound. Creeps.

Hybrids

Hybrids have originated in cultivation mostly from chance seedlings or mutants and are given vernacular

names. Regrettably, some of the latest hybrids are very scarce and expensive to buy and are seldom available in the nursery trade. Their attraction is worth the search because they represent what is new in hosta breeding. Their vigor, marked change in foliar color, texture and contrast form warrant the acquisition of some of these new plants. A few will be specified. Choosing these few from the enormous number in the hybridizer's garden was a difficult task. The name in parentheses after the hybrid name is that of the hybridizer. For purposes of description the color of leaves and flowers will be noted when supplied by the hybridizer.

'Ann Arett' (Arett): A mutation of *H. lancifolia subcrocea*. The cream edged leaf is scalloped around the gold center.

'Beatrice' (Williams): *Lancifolia*-type seedling. Leaves are green or variegated with yellow stripes. Late lavender bloom.

'Birchwood Parky's Gold' (Shaw): Seedling of *H. nakaiana*. Golden heart shaped leaves. More gold color if grown in the sun.

'Blue Cadet' (Aden): Seedling of *H. tokudama*. Small plant. Heavy blue leaves with white edge. Very floriferous.

'Bountiful' (Fisher): Seedling of *H. nakaiana*. Small pointed green leaves. Pink flowers.

'Chartreuse Wiggles' (Aden): Small clump, ruffled chartreuse-gold leaves.

'Candy Hearts' (Fisher): Seedling of *H. nakaiana*. Leaf texture better. Heart shaped green leaves making a low mound. A heavy bloomer of lavender flowers.

'Gold Cadet' (Aden): Small plant. Bright yellow-gold leaves of heavy substance.

'Helen Field Fischer' (origin unknown): Small plant resembling *H. fortunei hyacinthina*. Has white line

around leaves of green-gray. Low mound.

'Louise' (Williams): Lanceolate leaves with a white border. White flowers in August. Twelve inch mound.

'Minnie Klopping' (Klopping): Small round blue-gray leaf. Leaf mound stays low.

'Sentinels' (Williams): Very early. Shiny green leaves. Purple flowers in August.

'Show Piece' (Fisher): Small plant. Compact mound. Leaves soft yellow-green with dark green veins, ruffled edges, glossy. Round ball buds. Flowers lavender.

'Snow Flakes' (Williams): Green leaves making a fine mound. White flowers in August.

'Special Gift' (Fisher): Low growing mound with silver in its leaf. Flowers soft lavender.

'Starburst' (Eisel): Seedling of 'Beatrice.' Low green, white striped leaf. Rosette type plant.

'The Twister' (Savory): Dark green leaves artistically twisted. Blooms purple in August.

'Yellow Splash' (Aden): Small neat

clump. Bright splash of variegated pattern in leaves.

Hosta, the hardy genus of surprise, is a prime plant for the garden. As nature dresses her brightest in the autumn, beautiful gold colors come to most hostas. In the frosty fall when the skies are dull, look to the hostas, whose foliage has turned to yellow or gold, for the sunshine of your view. This ends the year on a surprise note for these plants. Whether species or hybrids, there are many hosta leaf patterns and colors in these small leaves for the decoration of your whole garden area.

A collection of Hostas growing for display, sponsored by The American Hosta Society, is in The Landscape Arboretum of the University of Minnesota, Chaska, Minnesota.

A few sources where good hosta plants, species or hybrids, can be obtained are: Garden of Aden, 980 Stanton Avenue, Baldwin, N.Y. 11510; Mrs. Glen Fisher, 4392 W. 20th Street Road, Oshkosh, Wisconsin 54901; Savory's Greenhouse, 5300 Whiting Avenue, Edina, Minnesota 55435.



Globularia cordifolia

Sharp sand is a valuable medium extensively used in gardening. Even though builder's sand has good characteristics, nature sometimes provides better material. If you search along short streams, sufficient accumulations of sharp sand can usually be found. The less the sand grains have been transported by water, the more likely they are to be sharp; longer transportation smooths down the sharp edges of sand grains by mechanical action. Sharp sand holds moisture better and provides better aeration than smoother, more worn sand.

Joseph Yelisavcic, Ossining, N.Y.

Wildflowers on the Bickleton Ridge

GERTRUDE SUTTON

Greenfield, Wisconsin

Photograph by Mrs. Joseph Lucas, Richland, Washington

Two of us "Easterners" were fortunate to be included in a wildflower field trip to the Bickleton Hills of Klickitat County, Wash. in mid-April. An ARGS member, Mrs. Joseph Lucas, formerly of the Connecticut Chapter and later of the Illinois-Wisconsin Chapter (where I met her), now lives in Richland, Wash. I visited with her for a few days and found her gardening in near desert conditions — a new challenge for her. During my stay a day's outing with several wildflower enthusiasts — a real treat for us — was arranged.

The place was about fifteen miles north of the Columbia River, about midway between Bickleton and Goldendale, on a sort of extension of the Horse Heaven Hills. Objective: to identify and photograph the wildflowers of the area that were in bloom that day; and the profusion of bloom we saw on this early date was breathtaking. Some species were familiar; some we had never heard of. Most were new to us. Before the day was over our count was well over forty genera and species.

On our very first stop we saw *Viola trinervata* with its blue-green, almost succulent foliage and bi-colored flowers; the upper pair of petals are velvety purple while the lower three are lavender. These sagebrush beauties (Sagebrush Violet is the common name) were interspersed with *Lewisia rediviva* not yet in bloom.

The meadows were frosted with masses of *Leptodactylon pungens*, the

Granite Gilia, as it is known locally and there were patches of Oregon Sunshine, *Eriophyllum lanatum*, a small bright yellow Composite. In the ravines and areas which had the benefit of runoff from the melting snows we found *Dodecatheon pauciflorum*, the Western Shooting Star.

Here and there were pinkish alliums; silvery mats of antennaria, the Mountain Pussytoes; *Phlox diffusa* spread its bright pink and white blossoms and *Brodiaea douglassii* with clusters of funnel-shaped flowers on top of the tall leafless stalks. It grows from corms and is sometimes referred to as Gopher Nuts. *Fritillaria pudica* or Yellow Bells was also in bloom; the hanging baskets turn from green to yellow to orange-brown as the season progresses. We noted some of the early erigerons, typical of the foothills country; *Ranunculus glaberrimus*, one of the very early blooming buttercups called the Sagebrush Buttercup; *Plagiobathrys scopulorum* (*nothofulvus?*), a much branched annual called Popcorn Flower; *Phacelia linearis* or Threadleaf; *Erysimum asperum* the Western Wallflower, its stems and leaves rough to the touch and many more.

As we drove along the road we saw numerous patches of bright yellow that turned out to be Balsam Root. There seemed to be two different species; the taller one was *Balsamorhiza sagittata* while the shorter one with cut leaves, we were told, was *B. hookeri*.

Among the blue flowers in bloom



Gertrude Sutton surrounded by *Leptodactylon pungens*

were delphinium; *Polemonium elegans*; astragalus, milk vetch; various lupines; Blue-eyed Mary, *Collinsia parviflora*; sisyinchiums and *Hydrophyllum capitatum*, or Ball-head Waterleaf, one of the smaller members of the family with round clusters of flowers.

The lacy gray foliage of lomatiums really caught our eye as rock gardeners. These plants belong to the Parsely Family and have dense pincushion umbels, mostly yellow, although we found one Pepper-and-Salt with white flowers and black anthers, all of them hugging the ground. Outstanding too, were the fields of *Trifolium macrocephalum* with two-inch rose colored clover heads and five to six leaflets instead of the usual three.

Among the taller plants we observed the *Sphaeralcia ambigua*, a peach col-

ored mallow, and *Ribes cereum*, the pink flowered Squaw Current.

We had our lunch near the top of a hill by a dry stream bed paved with flat water-worn, red, yellow, and brown rocks. It was very beautiful and made me think of the simulated streams that the Japanese use as features in some of their gardens. As this area had once been used as an Indian camp-ground we found many chips of quartz and obsidian flaked off the cores from which they had made their arrowheads and knives.

To this weary traveler, it was a memorable day and as we left the Bickleton Hills, I couldn't help but wonder what other blooming plants we would see if we returned in a week — or even a month.

• • • of Cabbages and Kings • • •

It would seem that having expressed firmly in print all the reasons for *not* using color in the Bulletin I shall now have to back pedal, for in this issue we break a precedent of thirty-six years and present you with two color pictures. Not that I recant; I still believe the reasons for not running color are valid, the expense being not the least of them.

However, in this case I believe color is justified. The discovery or rediscovery by Paul Maslin of the two exquisite phlox portrayed is, in newspaper parlance, a "scoop", an unlikely happening for the Bulletin and the story *is color*.

When the slides of these two phlox were projected on the screen at the joint meeting of the Connecticut, Hudson Valley, and Long Island Chapters in October, 1978, a gasp went up from the audience, and when it was announced that unfortunately neither the story of their discovery nor the pictures would appear in the Bulletin the gasp was followed by a groan.

When Mr. Maslin wrote, telling your editor of his find and offering the story of their discovery to the Bulletin, he said he would like to have the pictures printed in color and offered to help defray the expense. My heart sank as I knew we could not afford to publish them despite his generous offer and when I looked at the slides, duplicates of the originals, against the light coming through the window, I nearly burst into tears of frustration. So, with the approval of Jim Minogue, our president, I wrote Mr. Maslin telling him of my disappointment at having to refuse his offer and suggesting several other publications that would, I was sure, jump at the opportunity.

Two weeks later the pictures were

shown at the joint meeting and the snowball started to roll. An offer was made to try to raise enough money by private subscription to pay for the expense of publishing the pictures in the Bulletin; several people had already pledged sums to help. I called Jim Minogue. He approved with the provision that no ARGS funds be used. I called Mr. Maslin in Colorado to tell him of the possibility we could publish the pictures after all and find out if the article and the pictures were still available to us. As it happened he was in Mexico collecting more plants and seed of the phlox and could not be reached. His wife, who had answered my call, was fairly certain he had already contacted another publication; he would call me and let me know as soon as he came home the following week. Everything screeched to a halt. Then, two days later, a letter arrived from Chihuahua in which Paul Maslin said the Bulletin could have the story of the phlox even though we could not use color pictures and he was taking black and white pictures to replace them.

You know the end of the story. You can read the article, you can see the *Phlox lutea* and its brilliant vermilion, hybrid with *Phlox purpurea* in color, and we raised the \$500 needed to pay for doing it. Our heartfelt thanks to those who made it possible and especially to Milt and Jeanne Mulloy, who handled all the details of the solicitation.

Tonic for Moles

The following note from Mary Ley of Newtown, Conn. may help solve some of your problems:

The late Josephine Nuese described the following recipe in her book, *Country Garden*. I have used it with great success.

“. . . Take equal parts of castor oil and liquid detergent, add a little warm water and with a beater (egg or otherwise) whip up this repulsive mess until it is a foam. Then put two or three tablespoons of this into a watering can of warm — repeat, warm water, mix well and, using the sprinkler cap, douse the soil wherein are the moles. Best time to do this is when the soil is wet, after a rain or hosing, so that the oil can penetrate more deeply. And saturate the area, really soak it, not only the mole runs, but the adjacent soil as well . . . Two or three dousings may be necessary where mole infestation is heavy, but all this does no harm to plants involved. This treatment will keep the area mole-free for from three to six weeks depending upon how serious the mole problem and how heavy the earthworm population.”

Along the same lines of medication as above, it is said that an Ex-lax tablet dropped into a mole or chipmunk hole will make these little trouble-makers go elsewhere. I have not yet tried this remedy, but I know, first hand, that the method described above really does get rid of moles.

For those who are allergic to the very idea of castor oil another deterrent suggested by Betty Ann Mech of Minneapolis, Minn. may solve your mole problem. She has, with considerable success, tucked bits of rag soaked with gasoline in mole runs to persuade the little beasties to move elsewhere.

Informative Publications

T. Paul Maslin and Panayoti P. Callas have compiled for the members

of the Rocky Mountain Chapter an annotated listing of the rock garden plants they have found durable, showy and reliable in the climate of the Colorado foothills over a period of years. This excellent little publication lists 118 genera from *Achillea* to *Wulfenia* with, in most cases, a number of species under each. The common name, if any, is given along with a brief description of the plant and in most cases hints on how best to grow them in the foothills of Colorado. For example: “*Sphaeralcea* (Copper Mallow). These dryland plants like a hot sunny place and deep soil. They are difficult to move, but come easily from seed. One of the best is *S. coccinea* with fuzzy, silvery foliage and intense, small orange cups.”

Also from the Rocky Mountain Chapter, this time co-authored by Panayoti Callas and Ray Radebaugh, is a mimeographed listing of “Ferns for Colorado Gardens.” This is somewhat less elaborate than “Rock Garden Plants for Colorado” but should prove invaluable to fern buffs.

It consists of a brief foreword describing several categories: Woodland Ferns, Rock Ferns, Bog Ferns and Desert Ferns, with brief growing instructions for each category. These are keyed by a letter to the list of ferns that follows. The pH is also given for each fern where it matters and symbols give additional information such as whether the fern is native to Colorado (x), especially easy or striking (!), or impossible (\$).

This preface is followed by a list of one hundred and twenty-three species and varieties of ferns with common names where known, each with its appropriate symbols and occasionally a comment such as “hard to establish, but well worth the effort.” Country of origin is also noted if the fern

is non-American. A brief listing of places where fern spores and plants can be obtained is also included.

These two lists can be obtained by interested ARGS members by sending a request along with a stamped self-addressed envelope and fifty cents for each list to the chairman of the Rocky Mountain Chapter.

The Allegheny Chapter has also put out a plant list, "75 Plants One Should Know — And Grow", compiled by Madalen Modic. This is not quite as comprehensive as the plant list published by the Colorado chapter as it concentrates primarily on plants that are fairly easy to grow in the Northeast (though not necessarily the most common.) It usually, but not always, gives brief descriptions and very occasionally a hint on growing conditions. This would be a useful list of plants for the new rock gardener still floundering among botanical names and wondering what plants to start with.

A list of twelve annuals suitable to the rock garden follows the list of seventy-five perennials and the names and addresses of two seedhouses where seeds for some of these can be obtained is appended.

A self-addressed envelope and twenty-five cents sent with a request to the chairman of the Allegheny Chapter will get you this list.

Perhaps other chapters have put out similar publications about which we do not know. It is a useful service to local members to have such lists of the plants suited to the growing conditions in their area. So often members, particularly new members, express a desire for a list of ten or twenty easy rock garden plants, but it is almost impossible to make such a list for a country as large and varied as the United States; what is easy in Michigan may be impossible in Georgia or

California or vice-versa. Such regional lists are therefore doubly valuable.

An Ex-Expert Reminisces

These notes, received from John P. Osborne of Westport, Conn. relate some of the pleasures and frustrations he has experienced during his years as a rock gardener:

These are disconnected reminiscences that I wrote, mainly for myself, when memories seemed fresh, almost alive. They are not intended to be a record of anything and may even be confusing, going back and forth as they do without rhyme or reason. Of course they have to do with rock gardening or the growing of wildflowers, whichever you prefer to call this particular form of madness.

During the sixties my favorite plants were the saxifrages, particularly the *Kabschias*. I eventually wound up with a whole alpine house full of them, several hundred pots, some eight to ten inches in diameter, even a few, such as *S. burseriana*, in twelve inch pots. They would start to bloom in February and for the next two months the alpine house would be ablaze with their beautiful flowers.

My main competition, both at shows and elsewhere, came from Linc Foster, and what fun we had. I won my share at the shows, but try as I would I almost, but never quite, could catch up with him.

In the early sixties not many American nurseries grew saxifrages so we were forced to send abroad for our stock. On the day that the package would arrive the excitement would begin: soil mixed, everything in order, and the potting up began, sometimes to go on far into the night. Those were happy days.

But fate is fickle and sometimes cruel. Linc goes on his merry way, growing his saxifrages better than ever and I have not a one. You see there were, during the sixties, seven years of bad drought when summers were dry; the plants would tolerate this kind of weather. Then came a change to hot humid summers and my beautiful hard-cushioned saxifrages turned overnight into putrid mush. Of course, I keep telling myself that Linc, being further north, did not suffer as I did. One has to console oneself somehow. The sorry end of an ex-expert.

I love good food and my plants do too — but not for long (I refer to my plants, for I see no reason at eighty-two to change my fondness for good food and wine.) During all my gardening career I have had a tendency to work with soils that are too rich and heavy. I like to grow some of the little ground-covers such as *Dalibarda repens* and *Mitchella repens*. I would start a nice patch but in a year or so it would peter out to nothing. I'd try again with the same gloomy results until I finally got it through my head that the soil was too heavy. Now large patches thrive in plain leaf-mold and sand. I had the same problem with alpines until I learned to grow them in about seventy-five percent gravel. New plantings must be watched for the first year and not allowed to dry out until their roots are well down in this gravelly soil. I top-dress the whole garden each year with leaf-mold and sand to be sure there is always plenty of humus in the soil.

I had three plants of the double *Trillium grandiflorum*, which is one of the few double-flowered plants that I like. They had been growing in the same place for eight to ten years, but last summer I decided to divide them.

They proved very easy to divide and to my amazement I wound up with thirty-two plants. All this sudden wealth made me so conscience stricken that I had to give away a few of them — a very few, I'm afraid, but it made me feel easier about the ones I kept. These I carefully planted in plain leaf-mold and sand. Spring is almost here and I can hardly wait for these lovely plants to reappear.

Somewhere along the line in our gardening experience we may begin to believe that we are experts. Then we are really in trouble. Obscure women's clubs invite you to talk on house plants. A persistent lady brings you a half-dead plant to revive. Someone has a curious looking plant that some garden shop has told her is nothing but a weed. "But," she says, "garden shops don't know much." She wants to learn the truth from you. There is no end to it.

I recently came across a book by John Wechsberg, a writer who lives in Vienna, which struck me as having interesting things to say on the subject of experts:

"In pre-war Europe, a man was respected for being a gifted dilettant, not an expert. We admired the universally interested amateur rather than the specialist. Experts were bores, talking only of their specialties and knowing little about the outside world. The dilettants were much more amusing, interested in many things, unafraid to try some of them, though they knew they couldn't do them as well as the experts."

So I'm happy in my garden. When visitors ask me questions about this and that, if I know the answer I tell them and if I don't I simply say, "I don't know." It's very comfortable to be an ex-expert.

A Race of Gardeners

The following note was received from O. B. Gudmundsson, Secretary of the Icelandic Horticultural Society, "with boreal greetings to Mr. Le Comte and other A.R.G.S. members in New Zealand."

In our Bulletin (Fall 1978) Mr. Le Comte of New Zealand, referring to the Secretary's Report 1977 on membership outside U.S.A., suggests that "if comparisons must be made, would it not be better to calculate membership on a per capita basis?" I agree. But I can not agree that New Zealand then comes out with "the highest percentage of all." Fifty-nine members of a three million population hardly makes twenty in a million.

What then about us here in Iceland with thirteen members in a population of two hundred and twenty thousand?

That would be fifty-eight members per million, using the per capita basis! Surely we Icelanders must be a "race of gardeners" par excellence!

At Your Service

The pages of past issues of the Bulletin are filled with information valuable to both new and old members but very few of us have complete files. May I suggest that you all get copies of the Cumulative Index from your ARGS Store. You can then look up the item on which you need information and write to the ARGS-PHS Library Service or the Business Manager giving the Volume and page numbers as well as the subject in which you are interested. The correct issue will be sent you, if available; otherwise you will be sent a duplication of the pertinent pages at a charge of fifteen cents per page.

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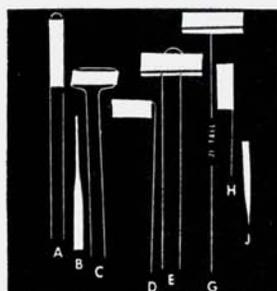
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