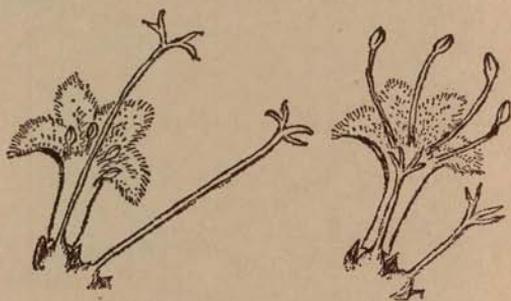


Mitchella repens



Laura Louise Foster

Bulletin of the American Rock Garden Society

The Bulletin

Editor Emeritus

DR. EDGAR T. WHERRY, 41 W. Allen Lane, Philadelphia, Pa. 19119

Editor

H. N. PORTER, 158 Whitfield St., Guilford, Conn. 06437

Editorial Advisory Committee:

Roy Davidson	Donald Peach
H. Lincoln Foster	Owen Pearce
Laura Louise Foster	Sharon Sutton
Bernard Harkness	Margaret Williams
Anita Kistler	

Contents

Vol. 35 No. 3

Summer, 1977

The Compost Pile—From Roanoke to Valley Forge (Pam Harper), Plant Show Report and Notes (W. Hirsch and W. E. Brown), Treasurer's Report (A. J. Latawic), Award of Merit to Elmer C. Baldwin, Katheryne E. Boydston, Henry R. Fuller, Frances Kinne Roberson, LePiniec Award to Joel Spingarn, <i>Iris douglasiana</i> 'Canyon Snow', <i>Helichrysum coraloides</i> (J. R. LeComte), Lohbrunner's Nursery (L. L. Foster), Planters, Report of the Nominating Committee	105
<i>Mitchella repens</i> —H. Lincoln Foster	133
<i>Trillium luteum</i> Anyone?—Edith Dusek	135
<i>G. Sedum</i> —Its Life and Habits—R. L. Evans	136
The Rock Ferns—Kay Boydston	141
Miniature Irises for the Rock Garden—Earl Roberts	146
Obituary: Elmer Baldwin	150

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. The office of publication is located at 3 Salisbury Lane, Malvern, Pa. 19355. Address editorial matters pertaining to the *Bulletin* to the Editor, H. N. Porter, 158 Whitfield Street, Guilford, Conn. 06437. Address advertising matters and all other matters relating to the Society to the Secretary, William T. Hirsch, at office of publication above. Second class postage paid in Malvern, Pa., and additional offices.

Bulletin of the American Rock Garden Society



Vol. 35

Summer 1977

No. 3



THE COMPOST PILE

Our liveliest of correspondents, Pam Harper, reports on the Annual Meeting and on her trip thither and thence.

FROM ROANOKE TO VALLEY FORGE

I had suggested to Dee Metheny that she come east this spring and see something of Virginia's mountain flowers. Time pre-empted by family commitments having been struck from the calendar we were left with two weeks from late April, within which fell the annual meeting. Dee, accustomed to mid-summer bloom on Mt. Rainier, expressed doubt about there being much to see so early in the year. In fact late April and early May is peak blooming time in the Smokies and along the gentle wooded slopes of the Blue Ridge Parkway where 3,950 feet is the highest elevation.

7 a.m. on April 29th found me out in the garden, dressing gowned and slippered, dibbling temporarily into a shaded corner the *Taxus baccata* 'Davie' which arrived in Dee's suitcase. This dwarf fastigiate yew with creamy leaf edges appeared as a seedling in the Metheny garden and was named by Dee for her husband. Around lunchtime we set off for Waynesboro, where Rte. 64 meets the Blue Ridge Parkway and Skyline Drive, arriving in time for a leisurely stroll to work up an appetite for dinner.

At noon next day we were to meet our guides for a wild flower walk, with Peaks of Otter Lodge at mile 86 on the parkway our rendezvous. Having stopped to exclaim, explore, examine and photograph a dozen times in half an hour, we then had to scurry along, consoling ourselves with plans to drive back in a leisurely way. *Stellaria pubera* grew in abundance along the way, and whilst the word "chickweed" is generally anathema this large flowered version is fully worthy of a place in wild and woodland gardens. Sunnier banks were pink with what I took for a phlox but which turned out to be *Silene caroliniana* var. *pennsylvanica*. "The wedge shaped pink petals and sticky upper stem and calyx are easily recognised," says my Field Guide. By some, no doubt. My first question to our guides elicited the response "don't ask us botanical names". We were on our own. The guides did, however, know the whereabouts of a few plants we might otherwise have missed, such as *Aristolochia durior* and *Cypripedium calceolus*. They were also patient and helpful with the children in the group, perhaps more important than tossing off botanical names for the benefit of the cognoscenti. By day's end we had seen over thirty different flowers. Dee was impressed by the violets, so much more diverse and with larger flowers than those of the west coast. Conversely, *Pedicularis canadensis* lacked the refinement of some west coast species. Highlight for me was *Orchis spectabilis*, not only the bicolor but a pure white and a lilac self.

Next day we explored a shale barrens in the Buchanan area, our guide this time well versed in geology with some botanical background. Rainfall here is 30-35 inches a year, half that of the higher elevation. On these well drained slopes plants must be drought resistant. Prickly-pear (*Opuntia humifusa*) swathed a rocky ledge, though not yet in flower. The price paid for my picture was several hours spent picking prickles from wrists and arms. Sedums were abundant, similarly storing water in their fleshy leaves. So were mulleins (*Verbascum*), deeply tap rooted. Other shale barren plants survive by going dormant during periods of drought. Plants seen included such uncommon species as *Penstemon canescens*, and an 18" non-vining clematis with creamy nodding terminal bell identified by our guide as Silky clematis (*C. albicoma* I thought he said, Dee thought *C. albicaulis* . . . neither name can I find in my books). The description and drawing of *Viorna ochroleuca* in Britton and Brown seems to fit . . . can anyone straighten me out on this? As we drove away came one of life's big moments. Never before had I seen *Silene virginica* anything but scarlet but on a roadside bank (alongside the parkway) was a large clump colored bright petunia pink. And over it hovered a humming bird, the first I had ever seen. Nearby grew a smaller clump of a soft, greyed pink. The flowers were duly "collected" on film but the humming bird, alas, wouldn't wait.

After leaving the group and lunching in Buchanan we wandered back up onto the parkway and headed north again, stopping overnight at Peaks of Otter Lodge. This cedar wood hotel blends well with its surroundings, spreading long and low alongside a trout lake at the foot of Sharp Top Mountain, whole heartedly recommended to all but honeymooners and such. The walls are thin but you won't be disturbed by your neighbor's TV, there is none. Advance reservations are needed Friday and Saturday nights

but usually not on other days except during summer vacation and peak fall color. The dining room overlooks the lake . . . mountain blackberry cobbler for dessert, yummy.

From just opposite Peaks of Otter visitor center a shuttle bus leaves on the hour to climb Sharp Top Mountain, depositing passengers 1500 feet from the top (half an hour's leisurely climb) and returning for them one hour later. Half an hour, that is, if you don't linger along the way. We stopped often, including a bit of minor mountaineering to photograph *Dicentra eximea* atop a large area of smoothly sloping rock. The native lily of the valley, *Convallaria montana*, grew here in abundance, just coming into bloom. Here and elsewhere we saw *Trillium grandiflorum* by the acre. I had supposed it always to open white and fade to pink. Not so, some flowers were pink from the start, the foliage also suffused with red. Having used three quarters of our time on the upward climb, we returned to the bus stop at a fast trot.

So much did we find to photograph that the 86 mile drive from Peaks of Otter to Skyline Drive took four hours. Among the flowers seen were *Hypoxis hirsuta*, *Clintonia umbellata*, *Caltha palustris*, *Gillenia trifoliata* and *Conopholis americana* (if this curious parasitic plant can be called a flower). There were three species of bellwort in bloom, *Uvularia grandiflora*, *U. sessilifolia* and *U. perfoliata*. *Rhododendrons nudiflorum* and *roseum* scented the air. *Aquilegia canadensis* is ordinary enough, but not in the way it grew, tumbling from the interstices of a rocky ledge. Walking back to the car we saw what surely had to be moosewood, *Acer pennsylvanicum* with its green and white striped trunks. Or was it? I did not know that any maple had flowers in pendulous strings as we now saw them, but rather few native trees have opposite leaves. In the June 'Horticulture' Andreas Feininger suggests "madcap horse" as a memory jog . . . maple, ash, dogwood, *Caprifoliaceae* (*Viburnum*), horse chestnut and the allied *Aesculus*. Moosewood it was. An acre or more of interrupted fern (I think), with the almost black fertile fronds at their most spectacular, occupied our attention for quite a while.

Now we were tired and hungry. We speeded along the Skyline Drive (in so far as one can around hairpin bends), slowing for several deer and a pair of wild turkeys which sized us up from the roadside verge. Big Meadows was our stop for the night, again with spectacular views from the bedroom balconies. On the roadside banks of the Skyline Drive between Big Meadows and Front Royal *Viola pedata* grows in abundance, not only the lavender but the bicolor, the white, and a miniature white which might have proved irresistibly collectable had we been heading home.

A stop over in Washington, a trip to the arboretum, then on to Valley Forge, in time for lunch before taking off again for the Wister garden. Adelaide Minogue came along, Jim being occupied with the Board meeting. We sometimes forget that our officers miss part of the fun while taking care of the Society's affairs on our behalf. *Rhododendrons* were at their peak along the woodland walks of this lovely, steeply sloping garden, but a thunderstorm ended our visit almost before it began.

Back at the Hilton many show plants were on display, among them *Corydalis wilsonii*, *Lewisia cotyledon* 'Drake's Orange', gentian blue *Polygala*

calcareae, a nine inch *Cassiope lycopodioides* bun covered in creamy pearls in their dark claw settings, and the aptly named *Sempervivum* x 'Oddity' with lettuce green quills. Three ARGS member phlox introductions were in evidence . . . *P. divaricata* 'Fuller's White', *P. stolonifera* 'Ariane' and *P. bijida* 'Starbright'.

Fran Lubera, whilst keeping a watchful eye on her nine inch bristlecone pine, fifteen years from seed (wise to be wary, someone did walk off unobserved with a century old *Pinus rigida* from the Arboretum bonsai collection) gave me her "recipe" for the attractive hypertufa containers housing and enhancing her exhibits, namely, one part cement, 1½ parts vermiculite and 1½ parts peat, wire reinforced. Her exquisite (prize winning) container displayed *Phlox subulata* 'Sneewitchen', *Gentiana verna angulosa*, white *Dodocatheon dentatum*, *Veronica nipponica*, *Erysimum kotschianum*, *Sedum dasyphyllum*, and the minute *Ulmus parviflora* 'Pygmaea'.

6:30 p.m. — happy hour — the cocktails secondary to the conversation, for me on this occasion mostly about books (garden books, of course, of which HHH Horticultural had a good range on display) and photography. From Mr. Marsh, all the way from Ontario, I heard about the special mounts enabling three pictures to be projected at one time. Sounds a good idea for those like me who find it hard to whittle down slides to a point somewhere between eagerness for more and the first yawn of over saturation, which seems to come somewhere between 75 and 200 depending on the talents of the speaker, the quality of the slides, the time of day and the size of the preceding meal. Two books recommended to me were "Flora of Western Virginia" by P. D. Strausburg and Earl Core (West Virginia University) and "Flora of North and South Carolina" (Chapel Hill). My own favorite wildflower book remains Neltje Blanchan's "Nature's Garden", published in 1900, a little known classic valued by those who like their facts served up with some literary style.

Dinner time, then Catherine Hull, delightfully enthusiastic speaker, poised and unflappable through projector problems, her topic limestone gardening. Loudest ooh's were reserved (of course) for *Eritrichium nanum*.

By next morning more plants were on display . . . *Epimedium macranthum*, *Conondron ramondioides*, white fruited partridgeberry, *Menziesia purpurea*, *Campanula calaminthifolia* with its wee white stars, and *Schizocodon soldanelloides* in blooming perfection. "ARE they plastic?" asked a young man passing by . . . a compliment, I suppose, on the unblemished perfection of the exhibits. I put him right and asked, "Are you interested in plants?" "I am NOW", he replied, in a voice of wonderment. A door had been opened, a flame lit — may it not go out.

10 a.m. and time for garden visits. A last minute hitch in the discovery that two of the tour buses were not licensed to go into Delaware was overcome with substitution of the Wister garden. At the Albany meeting Marnie Flook included *Arenaria montana* among her favorite plants. Now I saw it in bloom and endorse her recommendation. I had ordered seed and this germinated readily. Cameras clicked in the shady corner where grew a form of *Anemonella thalictrioides* with quaint semi-double green and white flowers. *Leptospermum scoparium* 'Nanum' bloomed in pots, presumably not hardy in that area.

I did not find time to visit Swiss Pines, whence went Lee Raden's conifers, with the loss, he tells me, of only 7 (mostly cedars) out of 204. But the Gevjan garden housed a fine collection, along with their alpine plants. Everyone exclaimed at the espaliered *Cedrus atlantica glauca* 'Pendula', at least it LOOKED espaliered, but Armen says it was merely left to its own devices.

In Morris Berd's garden I saw at last, after many false alarms, the true *Tiarella wherryi* with its distinctly pink flowers and deeply lobed leaves, nicely offset by purple foliaged *Heuchera* 'Royal Robe' nearby. A path winds alongside extensive dry walls, the cracks and crannies crammed with both sun and shade loving plants. My own patch of *Iris cristata* this year sported a section in palest lavender, almost white. Under a tree in the Berd garden grew a large drift of this same color.

Lastly the Kistler garden . . . correction gardens . . . his and hers. Last but certainly not least. Blooming plants galore . . . *Anemone sylvestris*, *Veronica teucrium*, *Semiaquilegia ecalcarata*, *Silene wherryi*, *Potentilla fragiformis*, *P. verna nana*, *Coreopsis auriculata*, *Iris hookeri*, *Dianthus* 'Bourbrille', *Actinea herbacea*, *Penstemon virens*, to list but a few. Here was the rare *Claytonia virginica* 'Lutea', rather a biscuity yellow, and a pure white dandelion. I left, dragging my heels, with a last click of the shutter for *Rhododendron vernicosum* in full pink bloom against the house.

Dinner speaker Boyd Kline's superb pictures and dryly humorous commentary ended all too soon. Touching on destruction of Siskiyou habitats by logging and resultant rarity of some plants, Boyd said that some people are still base enough to collect plants in the wild. A pause . . . and a miasma of condemnation (or was it guilt?) hung over the room, ending in laughter as Boyd added "mine are doing well". What hypocrites we all are really, ready to be swayed this way and that. It seems to me that careful collecting of seed, or an occasional plant which might otherwise continue to "blush unseen" does minimal harm. Indiscriminate picking is another matter. We had been distressed to see a large bunch of *Cypripedium acaule* rammed into a jug at Peaks of Otter Lodge, and to find bunches of trilliums picked and discarded along the trails. None of the plants so beautifully portrayed by Boyd was familiar to me. A list would have been helpful and I made a mental note to provide one myself in future, useful for subsequent research and adding immeasurably to the value of the program for those who, from deafness, poor acoustics or extraneous noise, cannot hear the commentary well or at all.

A quick shower and into bed, to review events of the day before putting out the light. Came a rattling of the lock and in walked a stranger. "How did my key open the door?" he asked in confusion, before exiting on a hasty apology without waiting for introductions. The face looked a bit familiar . . . if it was one of you, feel forgiven! On a practical note, don't leave your camera in your hotel room, or in your car.

Sunday morning began with the plant raffle and sale, including plants rescued from bulldozers in the Pine Barrens. A Time-Life photographer was there to record the activities. Never good at competitive sports, I wandered around bewildered while the loaded tables were emptied of plants

at incredible speed. One particularly desirable plant I had noted in the show was *Iris reichenbachii*, looking like a yellow *I. cristata*. There were a couple of plants on the sale table but others were quicker off the mark. Molly Price's "Iris Book" has let me down this time, with brief reference to the use of this species in hybridizing but nothing about its needs or origin. Seed (from England) was offered last year I see, noting that it comes from Yugoslavia. Can anyone tell me more?

Among the unusual plants seen during the subsequent all too brief visit to the Henry Foundation were *Trillium lancifolium*, *Halesia diptera*, *Phlox buckleyi*, *Clematis viorna*, and *Lonicera flava*. Why, I wonder, is this loveliest of the honeysuckles never offered for sale. Has the uncontrollable Hall's put such a blot on the family escutcheon as to bring about abhorrence all of the family? This one is scandent, the leaves grey green with the terminal pair enlarged and perfoliate, forming a saucer on which sits a large cluster of bright yellow trumpets, fading to orange, as showy as the flame azalea.

Home again, in time to photograph *Bletilla* (*Bletia*) just coming into bloom (after viewing with admiration the lovely Philadelphia gardens, I need to end with a bit of southern one-upmanship!).

Pam Harper

P.S. to my notes on the west coast conference. The "white flowered *Potentilla*" photographed on Mt. Rainier turned out to be a strawberry, instantly recognized as such by my non-horticultural husband. Ah me. Dee's "*Hepatica triloba*" is *H. nobilis*.

ANNUAL MEETING 1977 PLANT SHOW REPORT

CLASS 1 — Three pans rock garden plants of distinct genera, in flower, — 7 entries — 1st: *Erigeron aureus*, *Laurentia tenella*, *Rhodohypoxis baurii* 'Albrighton': Joel Spingarn; 2nd: *Lewisia cotyledon*, *Polygala calcarea*, *Gentiana clusii*: Lincoln Foster; 3rd: *Lewisia cotyledon*, *Erigeron* sp. seed coll. Wyo. '75 *Symphyandra wanneri*: Paul Palomino; HM: *Phlox*, *Primula*, *Epimedium*: Betty Valentine.

CLASS 2 — One pan rock garden plant in flower. — 13 entries — 1st: *Shortia soldanelloides*: Foster; 2nd: *Lewisia cotyledon*: Bill Brown; 3rd: *Lewisia cotyledon*: John Kovalchik; HM: *Epimedium macranthum*: Valentine; HM: *Verbascum* 'Letita': Spingarn.

CLASS 3 — One pan rock garden plant, new, rare or difficult in cultivation. — 7 entries — 1st: *Polygala calcarea*: Toni Serrell; 2nd: *Androsace helvetica*: Palomino; 3rd: *Conandron ramondioides*: Spingarn; HM: *Primula takedana*: Foster.

CLASS 4 — Three native American plants grown by exhibitor. — 7 entries — 1st: *Penstemon procerus* ssp. *tolmiei*, *Lewisia cotyledon* red sdg., *Townsendia* sp. white-seed col. Wyo. '75: Palomino; 2nd: *Anemonella thalictroides* 'Shoaf's Pink'; *Lewisia cotyledon*, *Trillium grandiflorum*: Fran Lubera; 3rd: *Convolvulus purshianus*, *Lonicera sempervirens*, *Phlox* 'Chattahoochee': Henry Foundation for Botanical Research; HM: *Lewisia cotyledon* — three pans: Foster.

CLASS 5 — One pan Saxifrage. — 7 entries — 1st: *Saxifraga* 'Sir Douglas Haig': Spingarn; 2nd: *Saxifraga* 'Kath Dryden': Foster; 3rd: *Saxifraga cymbalaria*: Palomino.

CLASS 6 — One pan *Primula* or *Primulaceae* in flower. — 10 entries — 1st: *Dodecatheon* 'Red Wings': Spingarn; 2nd: *Androsace sarmentosa*: Palomino; 3rd: *Primula* 'Gold Laced': Foster; HM: *Primula* 'Cowichan': E. Le Geyt Bailey

CLASS 7 — One pan bulbous or rhizomatous plant in flower, suitable to the rock garden. — 5 entries — 1st: *Rhodohypoxis baurii*: Spingarn; 2nd: *Iris reichenbachii* (?): Jan Hirsch; 3rd: *Iris cristata*: Dorcas Peet.

CLASS 8 — Three pans *Crassulaceae*, distinct. — 8 entries — 1st: *Sedum Sieboldii variegata*, *Sempervivum tectorum calcareum var. monstrosum*, *Sedum spathulifolium*: Palomino; 2nd: *Sedum spathulifolium*, *Rosularia pallida*, *Sempervivum* 'The Oddity from Albidium': Lubera; 3rd: *Crassula sarcocaulis*, *Rosularia pallida*, *Sempervivum* 'Plush Carpet': Spingarn



The winning entry in Class 1

Joel Spingarn

CLASS 9 — One pan rock garden plant with silver foliage. — 6 entries — 1st: *Asperula suberosa*: Spingarn; 2nd: *Convolvulus nitidus*: Palomino; 3rd: *Sedum spathulifolium* 'Capa Blanco': Palomino.

CLASS 10 — One pan cushion plant or polster. — 4 entries — 1st: *Gypsophila aretioides* var. *caucasica*: Palomino; 2nd: *Raoulia lutescens*: Spingarn; 3rd: *Draba mollissima*: Foster.

CLASS 11 — Three pans *Ericaceae*. — 2 entries — 1st: *Ledum nipponicum*, *Andromeda polifolia minima*, *Menziesia purpurea*: Spingarn; 2nd: *Rhododendron racemosum* sdlg, *Cassiope* 'Muirhead', *Leiophyllum buxifolium*: Foster.

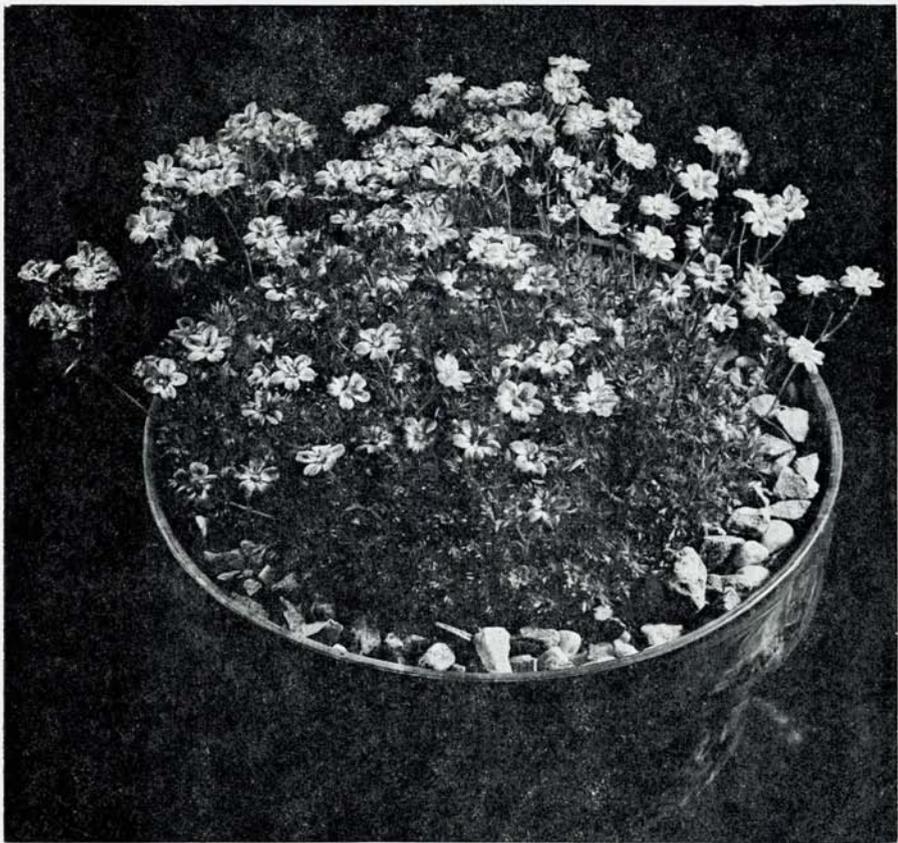
CLASS 12 — One pan *Ericaceae*. — 5 entries — 1st: *Cassiope lycopodioides*: Norman Priest; 2nd: *Leiophyllum buxifolium*: Henry Foundation; 3rd: *Rhododendron prostratum*: Floyd Fitts; HM: *Rhododendron williamsianum*: Fitts.

CLASS 13 — One pan dwarf Conifer, not Bonsai. — 12 entries — 1st: *Tsuga canadensis* 'Petite': Spingarn; 2nd: *Pinus strobus*: Lubera; 3rd: *Chamaecyparis obtusum* 'Leprechaun': Foster; HM: *Picea abies* 'Bennett's Broom': Palomino.



The winning entry in Class 11

Joel Spingarn



The winning Entry in Class 5

Joel Spingarn

CLASS 14 — One pan rock garden plant raised from seed by exhibitor. — 19 entries — 1st: *Dionysia aretiodes*: Herbert Wachter; 2nd: *Draba mollissima*: Palomino; 3rd: *Dodecatheon* sp. SRGC 706-1974: Marge Edgren; HM: *Pinus aristata*: Lubera.

CLASS 15 — Container of growing rock garden plants of 3 or more distinct species; container 12 inches or under. — 2 entries — 1st: Edgren; 2nd: Priest.

CLASS 16 — Container of growing rock garden plants of 3 or more distinct species, largest dimension over 12 inches. — 2 entries — 1st: Lubera; 2nd: Anne Ulsh.

116 entries; 21 exhibitors; 147 ballots cast.

1st aggregate winner: Spingarn, seven 1sts.; 2nd aggregate winner: Palomino, three 1sts.; 3rd aggregate winner: Foster, one 1st, three 2nds, three 3rds.

Awards Winners: Delaware Valley Chapter Award: Joel W. Spingarn — Class 1. Connecticut Chapter's H. Lincoln Foster Award: Paul Palomino — Class 4. Pennsylvania Horticultural Society Silver Medal Certificate: Herbert Wachter — Class 14.

William T. Hirsch — Show Secretary

Erigeron aureus, *Laurentia tenella* and *Rhodohypoxis baurei* 'Albrighton'.

This entry in the three-pan class was the winner of the Delaware Valley Award and exemplified the high quality of the material displayed at this Valley Forge show.

Erigeron aureus is a native of the high peaks of Western America. It forms clumps of spatulate leaves which in late spring emit disc-like flowers of golden yellow on 3-4 inch stems. It is perfectly hardy and flourishes in a well drained soil in full sun.

Laurentia tenella, of the *Campanulaceae*, comes from Southern Europe, where it grows in damp sites. It is marginally hardy and ephemeral in the Northeastern U.S. The plant flowers quite freely and for an extended period from late spring throughout most of the summer. Its petite charm seems best suited to a trough or a pan in the alpine house.

Rhodohypoxis baurei 'Albrighton' is a bulbous plant from South Africa with deep rose flowers borne on 3-inch stems. *Rhodohypoxis baurei* has a long flowering period, usually from May right through the summer. The plant is intolerant of winter wet and is, therefore, best suited to pot cultivation in frame or alpine house. The many varietal names that have been assigned to clones indicate a considerable range of growth habit and of color from white to deep red.

Shortia (*Schizocodon*) *soldanelloides* is a choice member of the *Diapensiaceae*. It is indigenous to the Japanese Alps and has proven difficult in cultivation. The delicately pink fringed flowers are carried on 3 to 4 inch stems above the rounded lustrous evergreen foliage. If one is fortunate enough to have *S. soldanelloides*, it may be increased by careful division of the side rosettes, which then should be treated as cuttings. My experience with seed has shown that, due to the late ripening of the seed, germination is fairly successful when it is sown on a peaty mixture and never allowed to dry out. The resultant seedlings will then require adequate drainage, rich acid soil, ample moisture, shade, and your patience, as it usually requires five years to produce a flowering plant from seed.

Androsace helvetica was not a first place winner in its class, but the appearance of this plant on the show table warrants comment. This high alpine member of the *Primulaceae* inhabits the rocky, generally limestone cliffs and crevices of the European Alps. Here in its native habitat the gray-green minutely rosetted domes freely and abundantly produce milky white flowers. *A. helvetica* is best coddled in the alpine house, where in winter it must be kept dry. Our hot humid summers are generally fatal unless PERFECT AIR CIRCULATION can be maintained. The use of an electric fan in the alpine house during the dog days of summer is one means of achieving the perfect air circulation so vitally important to all of the alpine androsaces.

Convolvulus nitidus, a silver-foliaged beauty, graces the alpine and subalpine regions of the Sierra Nevada in Spain. It is rare in nature and even rarer in cultivation in the U.S. *C. nitidus* is "built of ovate, blunt, folded little leaves, marked with nerves, and gleaming brilliantly with a plating of the finest silver sheen, soft and silky" (Farrer *ERG*). In July,

when permitted the freedom of full sun and a loose gravelly soil, it produces captivating cups of glistening rosy white flowers. *C. nitidus* is not hardy in most sections of the U.S. and should be afforded the luxury of alpine house conditions.

Gypsophila aretioides var. *caucasica*, a beautiful Iranian plant, forms hard gray-green cushions on which sit sessile white flowers. Unfortunately *G. aretioides* is a shy bloomer in cultivation, and this ten year old plant grown by Mr. Palomino has yet to bloom. *G. aretioides* is one of the finest cushion plants one can grow in the garden. It should be placed in full sun in a rock crevice or in tufa where the minute rosettes will increase slowly and, if Mithra the sun god is sufficiently placated, perhaps you will some day catch a glimpse of its flowers.

Ledum nipponicum (more correctly *L. palustre* var. *diversipilosum*) is a small deciduous shrub of the *Ericaceae* native to Japan. The small incurved rough green foliage has a whitish cast on the underside of the leaves. Terminal shoots, produced in spring, supply symmetrical clusters of near-white flowers. It needs a peaty acid soil in part shade, and its slow growth makes it an excellent subject for pot culture in an alpine house.

Menziesia purpurea is a dwarf deciduous shrub with small hairy leaves and, in May or June, nodding bell-shaped flowers of purplish pink to rose in clusters at the terminal points of the last year's shoots. It is of very slow growth. The plant shown was 12 years old and 15 inches high. The genus *Menziesia* is widely distributed with two species, both native to Japan, that are especially decorative for garden purposes. The other distinguished member of this genus is *M. ciliicalyx*, horticulturally similar to *M. purpurea* but reported to be even more dwarf.

Andromeda polifolia minima. The andromedas (*Ericaceae*) inhabit cool northern regions. This dwarf form (4 to 6 inches across) from Japan forms a dense bush. In spring urn-shaped pink bells are produced in terminal umbels. *A. p. minima* is tolerant of a wide range of garden sites, but seems to prefer a moist situation in full sun.

Dionysia aretioides, of the *Primulaceae*, was barely, if at all, in cultivation from its discovery in 1770 until 1959. In the last two decades, however, our British colleagues have learned how to grow, and grow well, this "impossible" genus (see *Dionysias* by C. Grey-Wilson, an AGS Guide). In this country, with its very different climate, there is as yet no consensus on proper cultural procedures, so I hesitate to offer suggestions. (*But some of our more adventurous members are succeeding with the genus and the Bulletin would very much like to have reports from them.* — Ed.)

Larry Hochheimer proposes that we incorporate into the Bulletin a section in which readers' questions are answered by experts, said section to be entitled "Your Gardening Angel". A volunteer is required to see that the questions are sent to the appropriate specialists, presumably a volunteer with a sense of humor.

THE AMERICAN ROCK GARDEN SOCIETY

Treasurer's Report

for the Year Ending March 31, 1977

CASH IN BANKS AT MARCH 31, 1976:

East River Savings Bank	\$13,372.38	
Tompkins County Trust Company	888.74	
Colonial Bank & Trust — Regular	4,326.32	
Colonial Bank & Trust — Special	500.00	\$19,087.44
		<hr/>

INCOME FOR THE YEAR

Dues	\$14,275.89
Seed Exchange	3,351.48
Bulletin Advertising	995.00
Sales — Bulletins	504.99
Sales — Books	586.00
Sales — Binders	125.00
Sales — Pins, Badges, Patches	332.00
Seed Germination Reports	52.00
Interest Income	877.70
	<hr/>
	\$21,100.06

EXPENSES FOR THE YEAR:

Bulletin Expenses:	
Printing	\$ 9,527.61
Mailing	1,340.22
	<hr/>
	\$10,867.83
 General Expenses:	
Seed Exchange	\$ 3,264.49
Annual Meeting	1,000.00
Officers' Travel	619.00
Slide Catalog	13.91
Printing and Stationery	680.89
Office Supplies and Postage	1,417.93
Bulletin Board	819.42
Secretary's Compensation	750.00
Legal and Accounting	250.00
Telephone	131.07
Awards	365.78
Dues	15.00
Bulletins and Books	280.84
Bank Charges	30.60
Membership List	480.00
	<hr/>
	\$10,118.93
	\$20,986.76

EXCESS OF INCOME OVER EXPENSES	113.30
FOR THE YEAR ENDING MARCH 31, 1977	

CASH IN BANKS AT MARCH 31, 1977:

East River Savings Bank	\$14,250.08	
Tompkins County Trust Company	2,338.69	
Girard Trust Bank	2,117.00	
National Bank of Malvern	494.97	\$19,200.74
		<hr/>

Anton J. Latawic, Treasurer



Elmer C. Baldwin



Katheryne E. Boydston

ELMER C. BALDWIN

At the annual meeting in Valley Forge the Society cited the following members for distinguished service to rock gardening:

As one of its important services the American Rock Garden Society offers to its chapters and to individual members the loan of slides of alpine plants, alpine scenery, and all aspects of rock gardening. There are, according to the latest catalog of the color slide library, over two thousand slides available.

To manage the arrangement of such a vast collection, to say nothing of the dispatch and retrieval of the slides to and from showings, requires a manager of real genius. The American Rock Garden Society has been fortunate to have as Director of the Slide Library for more than ten years, Elmer C. Baldwin of Syracuse, New York.

When he took over the job, our library was scanty and in considerable disarray. Each year Elmer Baldwin has extended the collection of slides and has refined the systematic cataloging to a high degree of excellence.

When he began this task for the American Rock Garden Society, Elmer was the outstanding Seed Director of our sister group, the American Primrose Society.

Over the years of his dedicated service to rock gardeners and to all plantsmen, Elmer Baldwin has won a host of friends and admirers. He has performed with such grace and modesty that few are aware of the prodigious labors that have gone into the job. For these inestimable services and in recognition of his sterling contribution to horticulture, the American Rock Garden Society is pleased to present to Elmer C. Baldwin the Award of Merit.

KATHERYNE E. BOYDSTON

The accomplishments of Katheryne E. Boydston of Niles, Michigan in furthering the purposes of the American Rock Garden Society and the cause of horticulture are identified in the decades of intensive effort she devoted to development of one of the finest tufa-rock and wild flower gardens in the Middlewest.

As translated into the cultural center that is known as Fernwood, Kay Boydston's dedicated efforts now provide perpetual inspiration for thousands of persons who share its rich educational program and enjoy its unique beauty. The rock gardens, perennial gardens, herb gardens, wild flower trails, and other horticultural facilities — all exemplify the perceptive and sensitive planning, as well as the often physically demanding and unceasing personal effort provided by Kay Boydston. The seemingly unendurable physical demands accepted so readily by this courageous lady would have deterred persons of lesser determination and character.

In addition to directing the Fernwood program, Kay Boydston accomplished extensive research in fern hybridization and, in fact, developed many unusual fern crosses, including some of particular interest to rock gardeners — all this in addition to expanding the extensive fern plantings at Fernwood by dint of her own labor.

An eloquent writer, Kay Boydston for many years devoted her literary effort primarily to Fernwood Notes which came almost solely from her own pen. The value of this publication for rock gardeners was recognized by the reprinting of some of the material in the Bulletin of the Society.

Kay was a member of the Awards Committee in 1972. Fernwood has become a mecca for Society members and has been a Chapter meeting site. But in a larger perspective, Fernwood stands as a monument to Kay Boydston's contributions not only to rock gardening but to all gardeners and to horticulture.

In recognition of her magnificent contribution to horticulture the American Rock Garden Society takes great pleasure in presenting to Katheryne E. Boydston the Award of Merit.

HENRY R. FULLER

For as many years as most of us can remember, with the assistance and inspiration of his wife Sally, Henry Fuller had an extensive and exciting rock garden in Easton, Conn. One should say rock gardens because he had two different, but equally distinctive rock gardens a few miles apart in the same town. With a tumble of rock ledges in each site, backed by woodland, Henry has created a magical landscape in each garden. The rich and varied plants under his green thumbs flourish and always look as though they had forever belonged just where he sited them.

Henry Fuller has always been a connoisseur, selecting the best and placing each specialty in just the right spot to insure its particular requirements, yet blending with deceptive naturalness into the general scheme of the garden. A visit to Henry's garden is always a revelation; at every turn there is something new and choice, not blazoned forth but fitting appropriately

into the general ambiance. Here is a little corner of the Pine Barrens, not far off a sweep of *Phlox divaricata*, and among the blues, vigorous plants of that outstanding 'Fuller's White'.

Besides providing us all with a charming garden and a most generous sharing of his choicest plants, Henry Fuller has over the years made extraordinary contributions to the American Rock Garden Society. He has more than once served as a national Director, chaired the North Atlantic Region in its growing days — and as Seed Director, perfected many of the management devices that have been carried forward in our growing Society.

As a man of many horticultural skills, as a lovable person, and as a devoted and stalwart worker for the Society, the American Rock Garden Society is honored to present to Henry Fuller the richly deserved Award of Merit.



Henry R. Fuller



Frances Kinne Roberson

FRANCES KINNE ROBERSON

Throughout her many years of membership in the American Rock Garden Society Frances Kinne Roberson of Seattle, Washington has given generously of wisdom and energy in furthering the objectives of the Society and the welfare of rock gardening. Her outstanding qualities of leadership have been twice recognized by her election to the Chair of the Northwestern Chapter as well as by her election as a national Director of the Society.

She has devoted immeasurable time and effort in serving in other chapter capacities and she played a key-role as Secretary of the Planning Committee for the First Interim International Rock Garden Plant Conference

held in Seattle in July 1976. The outstanding success and smooth operation of the Conference have been attributed in great measure to her meticulous attention to coordinating the planning and execution of all essential details.

Her sensitivity to the interests and capacities of colleagues has been an important factor in the successful accomplishment of each task that she has undertaken.

In addition to her leadership roles in the Society, Frances Roberson has contributed substantially to the well being of rock gardening by sharing her knowledge and experience through publication in the Society's Bulletin and elsewhere. For a period of time she and her late husband provided through their nursery an important source of rock garden and alpine plants.

For her distinguished service to the Society and in recognition of her contribution to horticulture, the American Rock Garden Society is pleased to present to Frances Kinne Roberson the Award of Merit.

THE LEPINIEC AWARD—1977



Joel Spingarn

JOEL SPINGARN

The development of interest in the dwarf conifers over the past two decades has been phenomenal. The array of pygmy cultivars in almost every species of every genus has now reached such proportions that soon we shall have specialists for each genus of the coniferous tribe. Yet we still need a generalist in the field to set us all straight.

The American Rock Garden Society is blessed with such a generalist in the person of Joel Spingarn of Baldwin, Long Island, New York. For many years as an adjunct to his full time occupation as a photographic tradesman, Joel has been a student of dwarf conifers, a propagator, a nurseryman distributor, and a creator of new cultivars.

On a small parcel of land in Baldwin, with limited greenhouse and frame yard facilities, Joel has enriched his knowledge, perfected his techniques, and distributed to fellow enthusiasts, many of them members of the American Rock Garden Society, a notable collection of dwarf conifers.

In addition to this special interest, he has grown to perfection a wide selection of the rare and difficult rock garden plants. He is a consistent winner of top awards at plant shows and has enriched our enjoyment by his stellar photography of plants. It is, however, especially for his development of propagation techniques, his creation and introduction of new cultivars, and for his making available the best of the dwarf conifers to fellow enthusiasts that the American Rock Garden Society is pleased to present to Joel Spingarn this 1977 LePiniec Award.



The following is reprinted from the current (Summer 1977) issue of PACIFIC HORTICULTURE.

IRIS DOUGLASIANA 'CANYON SNOW'

Maria Ealand

Starting with a batch of seed marked *Iris douglasiana* 'Alba' received from the American Rock Garden Society seed exchange in 1967, Dara Emery eventually set out ten plants for further study in the Santa Barbara Botanic Garden where he is horticulturist. The plants flowered in the spring of 1969 and from them he selected for quantity propagating one beautiful snow-white iris which he later named 'Canyon Snow.'

When the supply had increased sufficiently, Emery gave plants to the McCaskill Gardens in Pasadena, from where some were sent to Cordon Bleu Farms in San Marcos, California.

In April of 1964 'Canyon Snow' was registered with the American Iris Society whose judges at the 1975 International Iris Show in San Diego considered it outstanding. The following year it received an American Iris Society Honorable Mention Award.

The flowers of *Iris* 'Canyon Snow' have broad petals with falls held perpendicular to the stem. There is a small yellow signal at the base of each fall. The plant grows twelve to eighteen inches tall and is free blooming, usually producing three flowers per stem, each about four and a half inches across.

Emery is in the process of developing a new yellow iris. The Santa Barbara Botanic Garden gave as a Christmas present to each of its members last year a potted plant of Emery's new perennial lupine which comes in mixed colors of red, rose, pink, salmon, yellow, purple and white.

Never underestimate the power of seed from the ARGS Seed Exchange.

From James R. Le Comte, of Ashburton, New Zealand, comes the following:

"In the spring issue of the *Bulletin* (Page 56, No. 2, Vol. 35) there appeared a short descriptive article about *Helichrysum coralloides*, and Mr. Cabot is to be congratulated for producing such a fine plant at the Study Weekend Show.

"However, the use of the phrase 'an endemic of Mt. Terako' could be misleading.

"Mt. Terako (5,709) is at the very southern end of the Seaward Kaikoura Range and is actually in the Canterbury Province — just! *H. coralloides* is found along almost the entire length of the Seaward Kaikoura Range (Marlborough Province) from Lat. 42° in the north to Lat. 42° 30' in the south (Mt. Terako).

"The plant's habitat ranges in altitude from 1,500 ft. in the Awatere Valley area to 6,500 ft. in the Kaikouras, and as the article pointed out, it grows mainly on rock outcrops. The fame of Mt. Terako is, it is said, that the thickest-stemmed forms of *H. coralloides* are found there; reputed to be 'as thick as a finger' but the writer has never seen a plant that would so qualify. In various areas some forms are almost as slim as *H. selago*, but midway between *H. selago* and the 'reputed thick form' is more usual.

"In many Canterbury gardens *H. coralloides* is often grown beside a rock in a sunny situation. Such outdoor-grown plants keep a tight compact growth and the tiny leaves remain appressed to the stems, never opening as they do when given some shade. The plant is hardy in N. Z. gardens with winter temperatures down to 12° F and summer temperatures often in excess of 90° F and sometimes of 100° F."

Jim's accompanying letter begins:

"How fast the year has passed by since the Conference! How I wish it was all on again now — I had a terrific time and couldn't possibly have enjoyed myself more. Do you think it too late now to write a 'Thank you' paragraph in the *Bulletin*? I procrastinated because anything I would have written earlier could have been too emotional — that was how my six weeks in the U.S.A. and B.C. affected me. Just feel that it has been delayed a little too long now. Your thoughts?"

My thoughts are that this paragraph itself will bring back to all those who participated in the Conference at Seattle and Vancouver something of the wonder of the occasion — a wonder like that of our children when they recall the festival at Woodstock. It may be thought that there is little in common between rock music and rock gardening, but the two gatherings were both enormous assemblies of people who shared the same mad passion — and free for the moment from the constraints of rational society.

This prince of nurserymen then goes on to ask, "Have you any ideas on what sort of an article would be acceptable from this end?" — words to delight an editor's heart. Let all who read this either write an article or write requesting an article, perhaps nominating the author.

After Boyd Kline's fine talk at the Annual Meeting, in conversation with Timmy Foster (Mrs. H. Lincoln Foster, who, as Laura Louise Foster, does those beautiful drawings for us), I remarked how much our whole enterprise, namely the searching out and cultivation of the most beautiful wildlings of the world, depended on Crocher and Kline of the Siskiyou Nursery, and what a loss it would be were they to give up. She replied with the story of a young man in Canada who has taken over the stock of the famous Lohbrunner nursery. I asked her to write it up for us. The account follows.

LOHBRUNNER'S NURSERY

Though Edward H. Lohbrunner's nursery in Victoria, British Columbia, is officially named Lakeview Gardens, it has been affectionately known to rock gardeners all over the world as Lohbrunner's Nursery almost since its inception in 1946. For the nursery was Ed Lohbrunner.

Ed first became enamored of alpine plants nearly fifty years ago on his native island of Vancouver and when he married, he and his wife, Ethel, continued the pursuit of rare and beautiful plants throughout the mountainous areas of western and eastern North America, as well as in Europe and Japan, discovering many new to horticulture. These he grew and nurtured at his home in Victoria, adding to his trove by exchange with gardeners and nurseries all over the world, including New Zealand and Asia from whence he introduced innumerable little-known alpiners. Over the years his nursery became a name to conjure with.

Added to his superb plantsmanship are his generosity with plants, encouragement and information, and his delightful sense of humor, modesty and unswerving integrity. Rock gardeners have always known they would receive from him the best plants, superbly grown and true to name. He has received many horticultural awards, among them, in 1973, the Marcel Le Piniec Award from ARGS.

For almost ten years Ed has been threatening to retire, and rock gardeners have worried about the possible demise of his nursery. Rumors have flown that first one person then another would take over the business. But Ed wouldn't sell his beloved and fabulous collection to just anybody; he was seeking someone who would not only give his plants plenty of TLC but would be willing and able to carry on the great traditions of the nursery.

Now it seems he has at least found a successor in the person of a young plantsman from Stony Plain in the province of Alberta, Canada: Harold Siebert, the proprietor of Miniature Gardens. Siebert is only 34 but already he has an impressive background in the culture of rock garden plants. Perhaps more important from Ed's point of view is his tremendous love and his boundless enthusiasm for them.

In 1959 young Siebert, then only 16, got his first job working in a greenhouse, but it was four years later that the die was cast when he joined the staff of Alpenglow Gardens in British Columbia. Here under the tutelage of that great plantsman, F. W. Michaud, he lost his heart to alpiners and ever since has spent his time working with and studying rock garden plants, reading everything on the subject he could lay his hands on.

In 1963 he moved to Alberta where in 1971 he built himself an alpine house of his own, a rather small affair only 8' by 12', in which to grow and propagate the treasured alpinines he had acquired. In less than a year he was faced with a familiar problem. He needed more space. So he built another alpine house twice as large only to find shortly thereafter that it too was filled to capacity. Now Harold Siebert is not one to be daunted when in pursuit of his all consuming interest and he, therefore, along with his wife, Nadine, bought an additional three acres of land upon which to construct a larger, 26' by 100', alpine house which is to be shortly joined by another of the same size. Naturally (be warned, oh gentle reader) he ended up in the nursery business. In 1975 he put out his first mail order catalogue, decorated by permission of the artist and the editor, with the design that headed the title page of the late lamented "Connecticut Plantsman" and is still in use on the letterhead of the Connecticut Chapter of ARGS. It was shortly after this that he placed his first ad in the *ARGS Bulletin*.

Along with his collection of alpinines, Mr. Siebert grows close to 100 varieties of evergreens, many of which are suited for bonsai as well as for rock gardeners. He now mails his catalogues and plants all over the world through an arrangement with the Canadian Nursery Inspection.

Though Harold still refers to his nursery, Miniature Gardens, as a hobby, it has become evident to his wife and friends that it has long since become a full fledged profession. Obviously Ed Lohbrunner believes this too, for this spring he arranged to sell his precious collection of rock garden plants to Harold Siebert.

We shall miss Lohbrunner's nursery but we are glad he has found a suitable home for his plants and we wish Ed and Ethel a happy, fruitful retirement. And may Harold and Nadine Siebert enjoy for many years the best of growing and good fortune.



Trough in Roy Davidson's Garden

William E. Brown

Planters

The culture of house and conservatory plants and rock-gardening are at opposite ends of the horticultural spectrum. One is concerned with plants from tropical or near-tropical forests and deserts, while the other deals with plants from high mountains or from cool northern woods. Yet from a different perspective both these areas of horticulture differ from standard gardening in the same way. Whereas an "All American" annual or rose has been specially bred, and studied in test gardens, to make sure that it will thrive almost anywhere in the temperate zone if given soil in good tilth and of moderate fertility, a cymbidium or lithops, or an eritrichium or aretian androsace, will grow in the temperate zone where we garden only with the most rigid control of the edaphic and climatic factors (those fancy terms we learned in Seattle — they refer to soil and weather respectively). I should not, then, have been as surprised as I was to learn that the handsomely produced monthly, *Plants Alive*, which is strong on bromeliads, peperomias, and the like, was to run (Aug. 1977) a story on trough gardening for alpine plants, followed by a photo sequence of our own Robert Putnam constructing troughs. (The illustration on p. 124 shows a trough of Bob's manufacture in Roy Davidson's garden in Seattle.)

The culture of a community of alpiners in a planter seems to have begun a generation or so ago when Clarence Elliot, an English nurseryman, made miniature rock gardens in the old stone sinks or troughs that could be found around farmhouses and cottages. They soon became the rage, and the supply of sinks and troughs dried up. Artificial troughs were then made of a substance called hypertufa, a concrete mix in which sifted peat moss is substituted for the usual gravel aggregate. (The name "hypertufa" derives from the original use of the material as a substitute for tufa.) Hypertufa has a pleasant tan color, weighs much less than ordinary cement, and is said to be more sympathetic to plant roots.

Planters of hypertufa are widely and increasingly popular here now, and for good reasons.

One has complete control of the growing medium. Drainage, texture, and chemical composition can all be arranged to suit the needs of the plants to be grown. Neither invasive roots of trees nor soil pathogens are a problem.

Slugs and snails are kept at bay, particularly if the planter is raised on a pedestal. Cutworms, however, do appear.

If the planter is not too large to move around, one also has good control of climate. Think, for example, of what you could grow in a planter that was exposed to all the wind and rain and sun there was during the cool period in spring and fall, that spent the winter against the north foundation of the garage, with an old storm sash leaning over it to keep off excess rain, and in the muggs of summer was placed in a cool, airy, shady place, perhaps with some sort of transparent canopy suspended above to ward off thunderstorm and to deter the dew.

A portable trough can be used to grow many plants that are not winter hardy in your area if you have a deep coldframe or an alpine house in which to store it during the bitter months. I have grown the delightful *Raoulia lutescens* and other choice New Zealanders that way, as well as certain minute labiates from the Mediterranean shores.

A trough can be a micro-ecosystem consisting of a collection of plants you have brought back from an expedition. As the plants come from the same area, they should both do well together and look well together, and you will have the best possible souvenir of your journey. For some years I took great pleasure in a miniature pine barren where pyxidantha, leiophyllum and other treasures grew happily — but no more, alas.

Planters help in ways that have nothing to do with soil or climate. In a rock garden teeming with exuberant helianthemums, *campanula carpatica*, and gaudy lewisias, choice but soft-spoken and minute treasures such as *Androsace pyrenaica* or *Draba bryoides imbricata* can hardly be seen. In a trough, though, they are framed, as it were, and attract the eye.

Troughs, it is often said, make it possible for people with no access to a garden to grow alpine if they have but a balcony or terrace. This, no doubt, is true, but it has been my observation that the most assiduous and successful trough gardeners are very often people who have, and exploit to the full, splendid natural sites for rock gardens.

Finally troughs are fun to make. Their manufacture requires little skill and little money but does give full scope for any creative urges you may have. At the Eastern Study Weekend in New Haven in 1974 a session was devoted to demonstrations of methods of manufacture by Eleanor Brinckerhoff, Timmy Foster, and Fran Lubera. I reprint below the accounts of the techniques employed by each which were distributed to the audience.

SIMULATED STONE TROUGHS OF HYPERTUFA

Brinckerhoff Method

BUILD A FORM CONSISTING OF 2 SECTIONAL WOODEN FRAMES.

The trough on exhibit measures 13" x 19" x 5-1/2" overall — interior measurement is 10-1/4" x 16-1/4" — thickness of bottom is 1-1/2" and sides measure a little less than 1-1/2" thick. The form for this trough requires the following materials:

Outer frame:

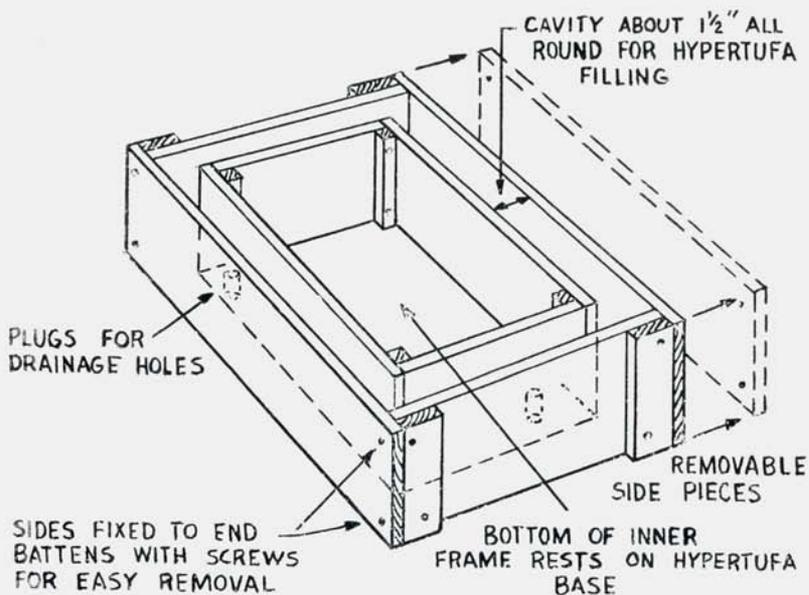
- 2 pieces — 1/2" plywood 21-1/2" x 5-1/2"
- 2 pieces — 1/2" plywood 13" x 5-1/2"
- 4 pieces — 3/4" x 1-3/4" pine, 5-1/2" long
- 8 — 1-1/4" nails or wood screws
- 8 — 2" wood screws

Inner frame:

- 2 pieces — 1/2" plywood 16-1/4" x 4"
- 2 pieces — 1/2" plywood 9-1/4" x 4"
- 4 pieces — 3/4" x 3/4" pine, 4" long
- 8 — 1-1/4" nails or wood screws
- 8 — 2" wood screws

PROCEDURE:

Attach the 5" pine pieces to ends of 13" sections of outer frame, using the smaller screws or nails. Attach side sections to end sections, using 2" screws, placing them so that they fasten into the pine corner pieces, not the plywood. Assemble inner frame in same manner except to place corner pieces on *inside* of form. See illustration.



TO MAKE THE TROUGH:

1. Place sheet of plastic on firm, level surface such as the basement floor, a sheet of plywood, or on the ground. Place outer frame on the plastic.

2. Cut and shape reinforcing wire forming a basket 11" x 17-1/2" x 4". This armature can be made of any 1" or 2" wire mesh.

3. Mix up a batch of cement in a wheelbarrow or tub using the following ingredients. 1 part portland cement, 1 part builders' sand, 2 parts peat moss, rubbed through 1/4" or 3/8" sieve (Figure 5 qts per part for a trough this size, and 1 batch is adequate).

4. Blend ingredients *thoroughly*. Then, add water gradually, mixing thoroughly after each addition. What you're aiming for is a very pliable mixture that can be worked into every corner of the frame . . . but not runny. Let mixture sit for about 5 minutes while peat moss finishes absorbing moisture. Add more water if necessary for proper consistency.

5. Scoop some cement into the waiting frame, enough to make a layer about 1" deep for the bottom of the trough, patting it into a rather even layer.

6. Set armature in place, settling it into the cement and being careful to have it equal distance from the form on all sides.

7. Place plugs for drainage holes.

8. Add more cement to make a 1-1/2" layer all over bottom and set inner frame in place, being careful to have it equal distance from the form on all sides.

9. Fill wall cavity with cement mix, adding it gradually and evenly all around; with a stick or old kitchen knife, poke and puddle the cement into corners and around wire as you go, filling to top of frames.

10. Lay sheet of plastic lightly over trough.

(Clean up. Wash cement off all tools immediately.)

11. 12-18 hours later, cement will have set enough to allow removal of inner frame. Withdraw screws that hold inner form sections together, and VERY CAREFULLY pull sections away from cement and lift each one out. Remove plugs for drainage holes with gentle twisting and lifting motion.

12. Replace plastic cover.

(Scrub cement off inner frame parts with stiff brush.)

13. When approximately another 24 hours have passed, remove outer form by withdrawing screws and gently pull form sections away from trough.

14. With stiff bristled brush, brush sides and top of trough, removing all sharp edges and the smooth look of poured concrete.

15. Side-pockets can be made at this point, if you wish, by slowly and carefully twisting an old kitchen knife through the cement sides.

16. Wrap plastic close around trough and leave it. Do not attempt to handle the trough until it is well set, . . . about 3 days.

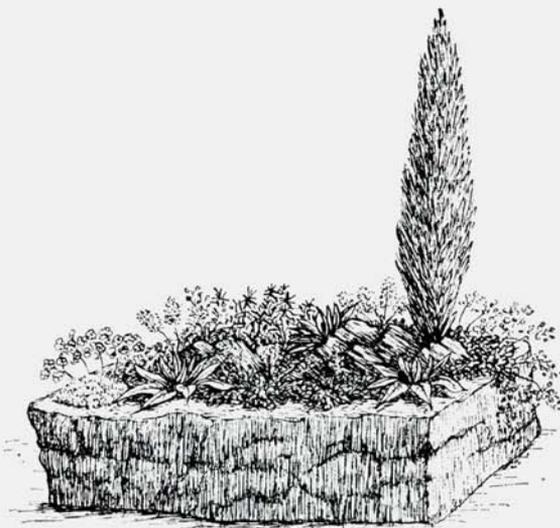
17. Grip trough near base and carefully stand it up on end. Scrape sharpness off bottom edge with the knife and clear the drainage holes.

18. Wrap the trough completely in plastic and set it down on a level surface. Allow to cure for 2 weeks or longer.

19. Unwrap trough and leave it exposed to several rainstorms. Or, if you wish to plant soon, the trough can be washed out by this method from "Rock Plants for Small Gardens" by R. E. Heath: ". . . wash out with a strong solution of water and permanganate of potash, roughly 1/2 oz. of crystals to 3 gallons of water, after temporarily stopping up the drainage holes. Leave the solution in the trough for 24 hours and afterwards lightly scrub the inside with a stiff brush."

Troughs made of hypertufa lose their new look by the second season but the weathering process can be speeded up by applying plain milk with a spray.

Troughs made in this way have withstood full exposure to Conn. winters for 4 years with no sign of deterioration.





FROSTPROOF NATURALISTIC PLANTERS

Foster Method

1. Make a firm pile of damp fine-grained sand the shape you want the inside of the planter.

2. Cover sand-mold with a piece of dampened sheet to protect it.

3. Form an armature of 1-inch mesh chickenwire by bending it over the covered sand-mold, clipping where necessary.

4. Remove armature and save. Discard sheet. Make a moat about 1 inch deep and 1 to 2 inches wide around base of sand-mold with a wall of packed sand.

5. Cover sand-mold with a sheet of thin plastic large enough to double back over it. Do not double over yet.

6. Mix up a batch of cement using the following ingredients:

1 part pure Portland cement

1-1/2 parts thoroughly crumbled moss-peat

1-1/2 parts Perlite

(Add 1/2 cup limeproof cement coloring powder to each quart of Portland cement in mixture if desired.)

Mix very thoroughly. Add water slowly. Stir until mixture is about the consistency of sloppy cottage cheese. Add more water a little at a time if mixture becomes too firm as you work.

7. Fill moat with cement mix and cover sand-mold with about 1/2 inch of mix.

8. Press wire armature down over cement-covered mold with edge buried in cement in moat.

9. Cover armature with another 1/2 - 1 inch of cement mix working it well between mesh of armature. Make cement covering on the top (bottom of finished planter) a little thicker.

10. Pull up free edges of plastic sheet around sides and pack wet sand against it to hold it in place. Do not cover top (bottom of planter)

11. Slightly hollow exposed cement on bottom of planter by pressing the wet cement out toward the edge.

12. Work several wooden dowels through cement on bottom of planter to make drainage holes. Lower end of dowels should be in contact with plastic underneath cement. An exploratory finger helps find the holes in the mesh.

13. Allow cement to harden for 12 to 48 hours. It should be firm but scratchable.

14. Pull out dowels with a gentle twisting motion. Pull away sand and peel plastic from outside of planter.

15. Level bottom of planter by scraping off excess cement with a horizontally held pane of glass or flat board. Carve and brush outside to desired shape and texture. Brush off excess crumbs of cement with soft brush. Planter may be allowed to dry completely in this position if desired as the underlayer of plastic will peel off hardened cement.

16. To texture inside and rim of planter lift it gently off the mold while it is still carvable. Be careful not to pull at the edge or drop it or the tender cement will crack and pull away from wire.

17. Clear cement from drainage holes with a sharp implement.

18. Allow cement to harden completely and slowly by covering it for a week or two with a sheet of plastic or a dampened burlap bag. The more slowly cement hardens the stronger it eventually is.

19. Allow planter to weather outdoors for several months to leach out free lime or soak the entire planter in a wine-colored solution of Potassium Permanganate for several days to neutralize lime.

20. These planters will stay out in subzero weather without harm. They are best put flat on the ground during the winter when planted for the sake of the plants in them.

For a fuller account of Mrs. Foster's method, and a picture story, see *ARGS Bulletin*, v. 22, p. 99-103 (Oct. 1964).



Lubera Method

1. Make a damp sand form the size and shape you want the finished planter to be. The form should be about 3 in. thick and 4 or 5 in. high.

2. Fit plastic inside the sand form making sure the plastic is tight against the bottom.

3. Cut chicken wire to fit loosely inside the form by snipping and pinching to fit. Be careful not to disturb the form. Put aside.

4. With cement mixture build up the sides of the form, holding the outside with your free hand. Fill in the bottom. This should be 1/2 to 1 inch thick.

5. Press wire form into the wet cement.

6. Repeat No. 4 sandwiching the wire between the two layers of cement.
7. The top of the planter may be molded to suit your fancy.
8. Make 3 or 4 drainage holes in bottom using a screwdriver or a dowel.
9. Cover with a sheet of plastic and leave for 24 to 48 hours.
10. Remove sand from around the base of the planter. Peel down the plastic.
11. Remove any excess cement from around the rim and carve.
12. Clean out drainage holes.

It should be clear that there is no fixed rule that controls what ingredients you use in your cement or what design you use. There is much room for experiment and, given the plasticity of the medium, almost no restriction on form. The finished product can vary from a construction in which plants and rocks and container are arranged in such a way that the whole looks like a magic island rising from the sea, to a four-square rectangle with plants on top in which the pleasure is precisely in the contrast of the framing geometrical box to the graceful and varied patterns of the plants.

Planters can, of course, be made of redwood, and they will last a long time.

Some problems

Blue jays are prone to perch on a recently planted trough and pluck out and leave to expire the choicest specimens. I know of no cure but perhaps transcendental meditation might be a palliative.

A dwarf conifer is often planted in a trough to give variety of form. Much used for this purpose is the flame-shaped dwarf Irish juniper. But most evergreens will, in time, fill the planter with their roots and grow too big on top. The very slow growing *chamaecyparises* and hemlocks won't outgrow their space for many years. They, however, are bun-shaped, while the whole point of including a conifer is to be arbiform, for contrast.

Troughs are at their best after several years. Some plants will have died and the whole composition may be lop-sided, but the plants that remain will look as they do in nature, as if they had always been there, not perfect, like a well-grown alpine house plant, but scarred and full of character.

You will have to fertilize after a time. I use a modification of the crowbar method used for trees. Holes three or four inches apart are punched with a pencil perhaps two or three inches deep and in each is poured a mixture of three parts finely sifted leaf mold and one part bone meal. It works. Quick acting fertilizers are inappropriate for such long-term plant colonies.

Planters are often mounted on pedestals. Cement blocks, bricks, a section of a railroad tie, or of a trunk of a tree, will all do. Planters look well so raised. Slithering and crawling predators are deterred. Air drainage is better. And the tiny plants can be seen without stooping. In the climate most of us must live with, however, it is wise, as the Fosters tell us, to set the planter on the ground for the winter. Freezing and thawing are slowed a bit. The roots never get quite so cold. And snow, if one is lucky enough to have it, can cover.

REPORT OF
THE NOMINATING COMMITTEE

After due consideration to the qualifications of candidates proposed by members of the Nominating Committee the following slate was selected and is respectfully submitted to the membership for the offices denoted.

TREASURER (1) — Frank Cabot, Carmel Road, Cold Spring, New York. Frank Cabot is a superb plantsman who is active in both the Connecticut and Hudson Valley Chapters of the Society. He is formerly President of the world renowned New York (Bronx) Botanical Garden and was the catalyst responsible in the renovation of the Thompson Memorial Rock Garden. Frank operates a semi-commercial nursery and alpine house at his Cold Spring, New York estate.

DIRECTOR (1) — Term Expiring in 1978 — Marnie Flook, Greenville, Delaware. Marnie Flook is the immediate past Chairman of the Society's Delaware Valley Chapter. With Anita Kistler, she is responsible for the organization of the Annual Meeting which is being held at Valley Forge this year. She is a consummate grower and able lecturer.

DIRECTORS (3) — Terms Expiring in 1980 — Norman Deno, 139 LeNor Drive, State College, Pennsylvania. Norman Deno is an active participant in both the Delaware Valley and Hudson Valley Chapters of the Society. He is Professor of Chemistry at the Pennsylvania State University. He is a gifted lecturer whose incredible knowledge and philosophy of growing plants is refreshing.

Molly Grothaus, 12378 S W. Boone's Ferry Road, Lake Oswego, Oregon.

Molly Grothaus was formerly a very able Chairman of the Willamette-Columbia Chapter of the Society. She is both a talented gardener and lecturer. She is currently active in the American Rhododendron Society where she serves as Editor.

Deon Prell, 1160 Austin Road, East Troy, Wisconsin, Deon Prell coordinated the very successful Annual Meeting in Wisconsin several years ago. She is currently Program Chairman of the Wisconsin-Illinois Chapter of the Society. She is an ardent conservationist and able plant show judge.

By Quentin C. Schlieder, Jr., Chairman, Morristown, New Jersey

Norman Clark, Seattle, Washington

Iza Goroff, Chicago, Illinois

Eloise Lesan, Cos Cob, Connecticut

Claire Williamson, Carnegie, Pennsylvania

April 1, 1977



MITCHELLA REPENS

H. Lincoln Foster, Falls Village, Conn.

Dr. John Mitchell of Virginia who lived to the age of 92 (1676-1768), as few except doctors and botanists did in those days, and was an early correspondent from the Colonies to Linnaeus in Sweden, is nobly commemorated by the woodland carpenter of eastern America, the prosaic but elegant Partridge Berry, *Mitchella repens*. Who could wish for a more apt memorial than a plant that, though it may be a bit fussy about its milieu, bears evergreen foliage delicately pencilled with palest green at the midvein, intricate flowers endowed with a delicious fragrance, and brilliant scarlet fruit that persists frequently through the winter even as the next crop of flowers is forthcoming in mid-June?

Mitchella repens is worthy of close scrutiny at all seasons and in its mythical aspects. Its colloquial names, like those of other American plants, are redolent of folk-lore. Partridge Berry is the most widely accepted of these everyday names, shared by our Canadian neighbors among whom the plant is frequently abundant, by their designation, Pain de Perdrix (the bread of the wood grouse). Other colloquial names less frequently heard and sometimes of rather precious botanical origin, are Two-eyed Berry, Running Box, and Squaw Berry. The last name, I suspect, is a case of cultural denigration, suggesting, because the fruit is edible and perhaps nutritional but certainly not tasty, that it was suitable fodder for Indians.

The fact that it is generally known as Partridge Berry likewise gives rise to speculation. The mealy fruit *is* edible, as attested by literature and my own experiment (I am still alive); some creatures must therefore find it palatable. God never created an aimless beauty. Partridge do live where *Mitchella* thrives; therefore, Partridge must eat the berries.

When I was a hunter, in my more sprightly days, I hunted our native Ruffed Grouse and occasionally shot one. While plucking and dressing any sparse bag of Partridge I always inspected the crop of the bird (and I use the singular in admission of my poor marksmanship) to see what it had most recently eaten and thus get a clue as to the most likely sites for the quarry. Never did I find a fruit or leaf of *Mitchella* in the crop amidst the undigested strawberry leaves, fruits of barberry and hawthorne, and apple seeds. But it is pleasant to visualize a handsome male grouse strutting across a carpet of *Mitchella repens* in sites congenial to both plant and bird, punctuating his march by a quick gobble of a Partridge Berry or two.

To turn from speculation about the mundane food value of *Mitchella* to the plant itself, I am struck by the marvelous morphology of both the flowers and the fruits. Yet I cannot leave its nutritional or at least gustatory attributes without wondering, since it is a member of the *Rubiaceae* and hence related to coffee and cinchona, whether if we roasted the nutlets within the fruits and steeped these in boiling water, we might not brew a potion as seductive as coffee and perhaps more closely approaching the celestial elixir. I plan to experiment.

To return then once again to the growing plant.

We read that it is to be found from Florida and Texas northward to Quebec, Ontario, and Minnesota. Yet off in the fringes of its extension

it is authoritatively reported from many sections of Missouri; and obviously it will thrive out of its usual range. The specific sites where it is found are cited as "dry or moist knolls in woods" by one authority and "rich or low deciduous woods" by another. In my own area of southern New England where it is a frequent or common component of the ground flora of rich woods, it tends to favor acid sites, frequently under hemlocks where there is an open duffy soil into which the fine shallow roots may penetrate. These feeding roots, never more than about two inches long in their extensions, are sent down by the rambling vine-like runners of the plant at the base of the nodes from which the opposite rounded evergreen leaves are borne. There is no central rootstock as may be found in some ground ramblers. Each ramifying runner may be separated from the parent plant and, if not permitted to dry out, will become an independent plant, soon sending forth its own colonizing runners. Various clones of *Mitchella* have different patterns of branching. Some tend to send forth branches at every node and hence make dense compact pads, while others send forth rather extensive runners with few side branches. For terrarium use, to which the Partridge Berry lends itself commonly and successfully, or as a neat carpet at the foot of a bonsaied evergreen, the compact small leaved, many branched forms are most desirable. For large spaces in outdoor gardens, the bigger leaved, rapidly spreading clones, especially if prolific of flowers and fruits, are more useful.

The flowering and fruiting of *Mitchella* deserve special attention. The flowers, which develop from pearl-like valvate buds, sometimes deeply tinged with pink, are always borne in pairs on a single short scape. The ovaries of each pair are united and form the two eyes on the fruit. Each flower in the pair, waxy white when expanded in June and July, is composed of a trumpet-like tube and four spreading corolla lobes, densely bearded with crystalline hairs inside. These sweetly scented blossoms, quite similar to those of *Daphne*, are dimorphic in their sexual organs.

All the flowers on a given plant will have a single style split at the tip into four stigmas exerted while the stamens are included within the tube, while on another plant it will be the stamens which will be exerted and the pistil included. This arrangement, shared by many *Primulas*, is a useful device to prevent self fertilization, but it may also account for the fact that in some patches of Partridge Berry, because the plants have the same morphology, there will be very little fruit.

If the ovaries are fertilized, small green berries begin to form in late July and grow plump, waxy, and brilliant scarlet in September. Each ovary in a fused pair contains four small nutlike white seeds. Fully developed fruits frequently persist through the winter and are to be found on the carpet when the new flowers expand, creating a stunning picture of red berries and fuzzy white trumpet flowers close among the round-ovate, shining green leaves that themselves are handsomely variegated with pale lines.

There is a rare form of *Mitchella repens*, *forma leucocarpa*, whose fruits are ivory white, and it seems to be a consistent fruiter.

It is a simple process to increase the supply of selected clones by division at almost any time of year, or by soft stem cuttings in May or June. Seeds take two years to germinate.

In the Japanese forests there is another *Mitchella* species of similar growth habit, *M. undulata*, whose long-tubed, fringed and bearded white flowers arise from prominent boat-shaped bracts.

TRILLIUM LUTEUM ANYONE?

Edith Dusek, Graham, Wash.

Ordering *Trillium luteum* is rather like buying a box of Cracker Jack. One is never sure what the prize will be. Even ordering a "yellow trillium" is no assurance at all that when the flower comes into view it will be yellow. It could as readily be green. And if the sellers seem to be rather bemused on the subject, so do the writers of books.

The crux of the problem is that while there is, indeed, a *Trillium luteum*, it can just as well be green flowered as yellow. Proof of the pudding seems to be that it has a distinct odor of lemons in either color form. The trouble with depending on odor is that, when the weather is cold and/or rainy, the dratted posy completely withholds its scent. To complicate matters still further, there are 16 other sessile-flowered species which will sometimes produce flowers having various amounts of yellow.

If one follows Freeman's recent reorganization of the sessile trilliums, any species with *luteum* appended should produce yellow flowers with no trace of purple pigment in any of the parts. Species so designated include *Tt. reliquum*, *stamineum*, *maculatum*, *foetidissimum*, *cuneatum*, and *gracile*. *T. discolor* varies from cream to pale sulfur yellow. *T. recurvatum* has specimens showing various amounts of yellow, some being pure yellow. *T. sessile* has forms of greenish yellow, while in *T. decumbens* some plants have the upper portions of the petals yellowish. *T. underwoodii* sometimes leans to greenish yellow. *T. maculatum simulans* may be yellow above purple bases, or the stamens only may be purple. *T. viridi* is sometimes yellow above while *T. viridescens* may be greenish yellow. On the west coast, *T. chloropetalum* is sometimes greenish yellow or yellow (thus accounting for the name of the species) and *T. petiolatum* is also said to occasionally produce a yellow flowered plant. Except for those species bearing the *luteum* designation, many of the above species will provide a gradual series from one color to another.

It would be nice if one could select all specimens in flower. For those of us dependent on mail order houses, it obviously pays to secure *Trillium luteum* or "yellow" trilliums from as many sources as possible. The chances of getting an assortment are excellent even if one is not too sure what to call them. On one occasion, I received as *Trillium luteum*, one of the many yellow versions of *T. erectum*. It is said that *T. grandiflorum* on rare occasions produces the yellow-flowered plant and, although I have never read of one, I do have a specimen of *T. ovatum* with a delicate yellow blossom.

With such an array to choose from, it is obvious that some will be of interest only to the botanist. On the other hand, things which a botanist passes off as being of little importance may impress the gardener greatly. Not the least of these is the patterning of leaves and time of flowering.

G. SEDUM — ITS LIFE AND HABITS

PART 2: THE "GENUINA"

R. L. Evans, London, England

The Section "Genuina" is by far the largest of the sedum genus, and, except in one notable area, the proportion of these species increases from East to West. Japan records only a few native Genuina, and of these only one — *S. japonicum* — is cultivated in Europe. A variety of this — *S. senanense* — is very colourful, with foliage bright green above and crimson below, in a low mat. From central and northern China come two species much cultivated in the West, *SS. lineare* (usually the variegated form) and *sarmentosum*. Both die back in winter to tiny dormant rosettes, whilst the stems break away and the tips are presumably intended by Nature to root and so propagate. I have found that Nature requires considerable human assistance in this process, though I'm told that in the Eastern States *S. sarmentosum* can ramp around like a weed. This sedum is quite prostrate, and pretty as a spreader, whereas *S. lineare variegatum* is upright and fragile, with pink stems and pale green and white leaves.

The famous collectors, such as Forrest, Wilson, Farrer, Rock and Harry Smith, who in the early part of this century explored Yunnan and western Szechuan — "the roof garden of the world" — found this area as abundant in endemic sedum species as in the rhododendrons and other alpiners which were their principal interest. Quite a number had already been found by French missionaries, e.g. De Lavay, Faurie, and Soulie. The information which passed to the European botanists, however, was in the shape of written descriptions and herbarium specimens. As a result none of these 40 or so "genuinas" are in cultivation, nor likely to be so until the area is again opened up. Most of these were examined and named by the French botanist, Hamet, who according to his contemporaries led a sort of hermit life and seemed to have a penchant for sedums. So if ever the living plants become available for inspection there may be some revision of opinion.

From the Himalayas only about half a dozen "genuina" species, and a few annuals, have been described. The perennials include the only one I know to be now in cultivation, *S. adenotrichum*, from Afghanistan to Nepal. It is interesting in that it has the basal rosettes of spatulate leaves not occurring again (so far as I know) until one comes to the U.S.A. Its white flowers are borne on long slender stems, and it tends to flower itself to death.

There is then a leap over the deserts to the prolific regions of the Caucasus and Armenia. The "genuina" keep well away from Siberia.

The high mountains of the Caucasus, wet on the West and dry on the East, have given the U.K. one of the most common garden species, and one now being grown in the U.S.A., — *S. spurium*. This has flat cuneate leaves along the length of prostrate creeping stems. The leaves become very small in winter, leaving a spreading flat tangle of thick fleshy stems which seem appropriate only for covering a rubbish dump; and indeed its vigorous and untidy growth makes this seem its function at most times. At flowering, however, there is a transformation, and the whole

plant billows with large showy heads of pink or crimson. *S. spurium* grows in the West Caucasus, and closely allied are *S. involucratum*, from the North, and *S. oppositifolium* from the dry East, — sometimes known as *S. spurium album*. Both have white flowers. The inflorescence is particularly elegant. *S. stoloniferum* is daintier, with more erect slender pink stems and small, rhomboidal bright green leaves. It also has rose-pink flowers.

Also from this region come two very popular biennials, *SS. pilosum* and *sempervivoides*. The former grows on rocks in the north-west; from a little tight two-tiered pincushion of leaves emerges an erect leafy stem bearing a few showy pink flowers. The latter is a meadow plant; the basal rosettes, especially grown as a mass, resemble the “house-leek”, the leaves being of pale green tipped bronze. In the second year tall stems arise, and whilst the base dies away a splendid massed head of carmine flowers appears. Both are well worth growing if the seeds can be propagated, but *S. sempervivoides* does not take kindly to transplanting and should be sown thinly.

S. gracile, which also extends further East, has white flowers and packed leaves on erect stems superficially resembling *S. sexangulare*.

Asia Minor seems particularly rich in annuals, some endemic. An endemic perennial, *S. lydium*, grows on the moister eastern slopes. This is very suitable as a carpeter or paving crevice plant, though it does tend to die back and become very red in dry periods and in winter. In suitable conditions its tiny tufts of imbricate bright green leaves will spread around quite happily, and produce, in June to July, a close sprinkling of starry white flowers.

In Europe the outstanding “nomad” is *S. acre*, which has travelled so far afield and is so well known that it needs no description. It can be found in almost any country east of the Urals (though mainly north of the Mediterranean area), has penetrated to Morocco and has become naturalised in the eastern U.S.A. Its ubiquity, no doubt, is due to its energetic self-propagation. It spreads around, and any little scrap will strike in some crack or crevice; and seeds of course play their part. Like *S. album*, it's a sociable species and seems to seek human company. There is no point in searching for it in the wild when it can more easily be found in or upon some wall, whether of field or garden. With its low, upright compact tussocks of fresh green triangular leaves and bright yellow flowers it is quite neat and not really invasive. It looks best as a small young plant springing from a cranny.

There are a number of forms, — the more portly and formal *S. acre majus* (“maweanum”-hort.), the miniature “minus”, which is so useful for troughs, and the neat little *SS. acre elegans* and *aureum*, whose young leaf-tips are silvered or golden in spring.

The Balkans, which escaped glaciation in the Ice Age, seem to have been the original home of *S. acre*, for of late years botanists have segregated and named a dozen different allied species and sub-species, e.g. *SS. kostovii*, *krajinae*, *borrisovae* and *sartorianum*, from that region, — as endemics. *S. stribrnyi* (how do you pronounce it?) is often grown in the U.K. It is a bushy little plant, with grey-green leaves, often tipped red, bearing yellow flowers on long ascending forks.

S. sexangulare is almost as widespread as *S. acre*, especially in Central Europe and the Balkans; and if a little tufty stonecrop with short, cylindrical, closely packed leaves of mid-green and horizontal to the stem is found in those regions it is more than likely to be this. It may be checked by viewing from the tip, when the six spiral columns of leaves will appear. The flowers are yellow. It spreads around readily and is a good carpeter, though needing to be curbed.

Nearly as widespread, from the Alps northward, is *S. album*. This, with its white flowers is, in normal habitat, more of a western species, whereas the yellow-flowered *S. acre* pertains to the east. The size and length, and often the shade of green, of the leaves and their distribution along the stems vary so much from one local station to another that one might be forgiven for supposing that each separate locality produced its own separate sub-species. However, if you accept that *S. album* is just *S. album* wherever it grows it can quite easily be identified, in flower or out, by its cylindrical horizontal leaves blunt at each end, fleshy and normally dull or darkish green, alternate and fairly widely spaced. The leaves can vary from elongate to almost egg-shaped. The stems are slender and usually longish. It is also *S. album* if the leaves and stems have all turned scarlet with drought. One form of this is the variety 'muralis', — deep purple-bronze in stem and leaf during summer and becoming very short and glossy dark green in winter. Others are the miniature prostrate *S. album micranthum*, and the similar, but pale-leaved *var. chloroticum*. Another small prostrate form is sold as "Coral Carpet". This turns red in drought.

The typical *S. album* is often regarded as a bit of a weed, because it ramps and straggles about and gets untidy. It can also be invasive, and the birds plant it around without first consulting you. It produces a carpet of white flowers in mid-summer if ground-cover is wanted.

The Mediterranean regions produce a wealth of species, both annual and perennial, the annuals coming mainly from the islands. Many of these are in cultivation. With *S. album* the first of the fleshy, terete-leaved species was encountered. Further to the south-west appear species with leaves quite ovoid as *S. dasyphyllum*, *S. brevifolium* and its *var. quinquefarum*. These are all pretty little plants and reasonably hardy. The most common *S. dasyphyllum* has little grey-glaucous leaves tightly packed at random and minutely hairy. It is less than an inch in height and bears a small inflorescence of pinkish-white flowers. It is quite attractive in a scree. The dropped leaves will root, but unwanted youngsters can readily be extracted. From the N.W. African Atlas Mts. come a number of more prostrate and larger-leaved forms, flushed with pink or light purple, and more "showy".

S. brevifolium has rather longer, slender and erect stems, along which the ovoid leaves are disposed in four vertical ranks. The size of leaf, and depth of pink flushing, varies from form to form. It also bears a few white flowers, with a red nerve. *S. b. var. quinquefarum* tries to cram its very fat, chubby leaves into five rows, the result being a corpulent appearance with a drooping of the overburdened stems. It grows quite strongly, in a sort of low mound, and is easy to propagate. *S.*

atlanticum, from screens in Morocco, is similar in habit to *S. dasyphyllum*, but the leaves are flatter and arranged in little basal rosettes of pale green, pink-tipped, tightly and regularly disposed in a flat carpet.

S. hispanicum, widely distributed around the northern Mediterranean (except in Spain and Portugal!) is described as annual except for the perennial forms, — *S. hispanicum minus*. I have seen many forms of *S. hispanicum*, including a long lanky one several inches high, and often with queries as to what the plant may be; but in cultivation they have all assumed the perennial form of *S. hispanicum minus*. So until I am favoured with a true annual my opinion must be that *S. hispanicum* is in fact a perennial. As cultivated it quickly expands to a wide carpet of densely packed tufts, the leaves being very short, flat, oblong, glaucous green when the weather is damp, glaucous-grey when dry. In mid-summer the whole carpet is covered in short-stemmed starry flowers, white with a red nerve, and so appearing pink overall. There is a Russian allied species called *S. pallidum*, with paler leaves, as the name implies.

There are a number of other Mediterranean perennials in cultivation, including *S. hirsutum*, — and its big brother *S. winkleri*, (*S. hirsutum baeticum*), endemic to S. Spain. *S. hirsutum* is very low-growing. The short erect stems are tipped with close tufts of dull green leaves, glandular-hairy and rather sticky. The slender branches emerge from below, arch, and root. Its general appearance is uninteresting, but *S. winkleri* is a worthy plant, with much larger, fresh green leaves, noticeably sticky to the touch, and a fine head of white flowers. The branches emerge horizontally in pairs, after the style of *S. obtusatum*.

S. gypsicola, from Spain, is easily identified by its tight little fir-cones of greyish-green leaves, often suffused dark red, which later expand somewhat. The leaves are arranged in five spirals, the stems short, low-arching and rooting. It can serve as a contrast to brighter foliage, and in mid-summer throws up long slender stems bearing a lax inflorescence of white flowers.

S. pruinaum — endemic to the Serra de Gerez in Portugal — is a peculiar, mat-forming species, very distinctive and eye-catching when allowed, as it requires, to spread around in a mass. The general effect is a flowing tracery of pale green and pink, delicate and airy. The oddness is in its habits of growth, somewhat akin to one of the forms of *S. tenuifolium*. After throwing up its open inflorescence of straw coloured flowers, basal wiry shoots emerge, grow to a length of 6" or more and are tipped with tight little cones of leaves. Towards winter the shoots break away and wither, leaving the leaf-tips apparently helplessly forsaken on the ground. Contrary to all expectations, however, these will be driven into the ground by rain, and will root, producing new plants by next spring. I find it against all human credulity, nevertheless, to leave this entirely to Nature's quirks, and push some of the abandoned offspring in as a precaution. These are, of course, the ones most likely to die!

S. amplexicaule (*-tenuifolium*) comes in two sizes, — a short-stemmed ssp. from S. France and N. Iberia, and another with long and eventually prostrate stems from S. Iberia, Greece and other Mediterranean regions.

The former is that commonly cultivated. After flowering (golden yellow) the leaves of the barren shoots fade back within a papery sheath, much like a grass in drought, and so remain (like a handful of dried oats until winter rain stimulates them into renewed growth. The short ssp. grows very compactly, with pale- or grey-green leaves, and is desirable.

Among the annuals *S. coeruleum*, of the western islands, seems generally admired. It is the only species with blue (actually blue-tipped) petals, and when the very openly bushy little plants are covered with these tiny flowers and the fresh green, long-ovoid leaves are flushing crimson, the effect is very attractive. Once started, *S. coeruleum* is easy to grow, for collected seeds germinate readily, and it also seeds itself around.

Another annual, which can be found in the Alps, is *S. atratum*, an erect plant of 2-3" with close-packed, short cylindrical leaves, greyish green, suffused red and often becoming yellowish, and with pale yellow flowers.

Central and western Europe, and extending northwards, is the habitat of the *S. rupestre* and what I shall call the *S. nicaense* series. The definition and nomenclature of these species and ssp. had been the subject of considerable controversy. They are not as "showy" as many of the Mediterranean species, and are more "border" plants, — though *S. rupestre*, if kept under control, can serve for an edging or crevice. This is prostrate and creeping, the stems shaggy with old leaves except at the tips, which bear tufts of flat linear leaves, tightly balled in winter and often much suffused red, and opening and lengthening in summer. The inflorescence droops in bud and produces bright yellow flowers.

The *nicaense* species have erect or ascending stems, with fleshy, semi-terete linear leaves distributed along their length but often also crowded towards the tips. They vary very much from one locality to another, but always give the effect of business and fleshiness of stem and leaf, which *S. rupestre* does not. Two ssp. have been described and are recognisable: — *S. reflexum*, with golden-yellow flowers, drooping in bud; and *S. anopetalum* (syn. *ochroleucum*) with inflorescence erect in bud and flat in flower and fruit, flowers normally greenish white, sometimes pale yellow. The rest (*S. altissimum*, Praeger — rather a misnomer, since the height is quite variable — syn. *S. sediforme*) have an inflorescence erect in bud, subglobose in flower and concave in fruit. The flowers can also be greenish-white or pale yellow. Out of flower these ssp. are not so easy to distinguish, though the leaves of *S. altissimum* tend to be lanceolate and those of the others linear. The most compact and free-flowering *S. altissimum* I have seen have come from S. Spain and the Balearics.

The U.K. has two affirmably native species, the small white-flowered *S. anglicum*, with almost globular darkish green leaves, which grows on the western seaboard, and the elusive little *S. villosum*, hairy and with pink flowers. *S. acre* has so established itself as to become naturalised, and *S. album* has escaped to roam far afield.

Only a portion of the European species have been touched upon in this account. There are over fifty in all.

Mr. Evans promises us a further installment on the American and Mexican species. — Ed.

THE ROCK FERNS — A Dozen Familiar Ones

Kay Boydston, Niles, Mich.

On a damp bank, a dripping ledge, a steep cliff, a stony hillside or in a rich rocky woods, certain rock ferns can be found. For the fern student or photographer or botanist all these places offer rich rewards if their locations are known. With the tragedies of over-collecting, bulldozing and poison spraying, rarities are disappearing and the present habitats are often a guarded secret of those who want the ferns' protection. The fronds of the first dozen are shown on page 5, reduced to one-half size. They will be briefly described in the order of the number given them.

I wish there were adequate words to describe my first meeting with some of these little ferns — as meaningful and memorable to me as is the addition of a new name to an avid birdwatcher's "life list." My excuse for briefly mentioning some of these times as well as, occasionally, experiences with them at Fernwood, is that it may lighten the subject and make the descriptions less bookish. Mainly, a week long fern trip in the east in 1952 added many firsts to my life list as did a similar trip in northern Michigan a year later.

1. *Phyllitis scolopendrium*, hartstongue, is a logical one with which to start these paragraphs about rock ferns as it has played so large a part in fern trips and fern discoveries and has taken so kindly to our Rock Garden and damp gravelly banks near the Summer House. Actually it is America's rarest fern, seldom seen and more seldom listed. It is tempting but useless to repeat the history of personal contacts with it and of how it came to Fernwood. (A full issue of Notes is devoted to these stories — No. 11, January 1967, "The Hartstongue Story".) At the time that was written there was little idea that it would make itself so thoroughly at home here. One plant, raised from spores collected in New York and planted in the rock garden in 1966 (at the water's edge below the middle butternut tree) has increased to a two foot square and in the last few years has put its natural progeny in every part of the rock garden some as much as thirty feet from the original plant. In one place where another was planted years ago in a low north-facing damp wall below the main walk at the east end of the rock garden, the fronds are so large now, no others to equal them have been seen anywhere. The simple fronds are uncut and the shape of a deer's tongue which gives the common name. On the back of the frond the linear sori make a striking pattern reminding me always of a double row of parallel buttonhole stitches one on each side of the pronounced mid-vein. Planted now are spores of the Michigan hartstongue sent by Ruth Scherer and a few small plants of Michigan origin are growing in the Hagenah outcrop, tho here they are much drier than those in the rock garden.

2. *Pellaea atropurpurea*, the purple cliffbrake, may be six to twelve inches tall, has blue-green or sometimes gray-green fronds, quite erect and stiff with the divided pinnae held straight out at right angles to the rachis. The common name comes from the color of the wiry stems usually referred to as "purple" or "purple-brown" tho Dr. Wherry comments, "they are accurately scarcely purple."

Usually found in dry limestone rocks the roots compressed into the smallest space, the fern occasionally chooses banks of gravel or broken rocks — often in inaccessible places. Sterile fronds are shorter and different from the fertile which sometimes remain green thru the winter and new growth appears later in spring than that of most ferns. Spores are borne along edges of frond divisions and are covered by their reflexed edges until mature. Spores germinate readily and the young ferns at first stage of growth are round, not at all like the mature frond. Tho this cliff brake is found over a wide range, it is quite local and often in such inaccessible places it is considered rare. We saw it along a railroad's high overpass on the New York trip — abundant and tempting but impossible to collect.

3. *Polypodium virginianum*, the common polypody, is called the rock cap fern because it often grows in a thick close mat covering a large boulder with its dark evergreen fronds, short, thick and leathery. Noticeable for this fern are the perfectly round yellow large sori appearing in early summer very regularly spaced on the back of the fronds toward their tips. These button-like conspicuous spore patches have no indusium covering. Altho almost always found on rocks in the wild, polypody is sometimes found on the ground; the experience at Fernwood is that it is not easy to establish in such a situation. We are making slow headway on one shady slope in the rock garden and one near the Hagenah memorial. The "sods" are difficult to peg down and keep damp enuf until they have taken root. The American Fern Journal recently pointed out that the European form should be *P. vulgare* and the American counterpart should be *P. virginianum* tho the early writers and some present day nurserymen still erroneously call ours *P. vulgare*.

4. *Cystopteris bulbifera*, the bulblet bladder fern, with a size and shape quite out of the ordinary and with chosen habitats unusual also, is easy to find and identify. In spring growth it has dainty lacy fronds of the freshest shade of light green but as the summer wears on, the frond grows longer and longer — in optimum conditions even to four feet. Here at Fernwood we see them to about two feet — and even this seems long as compared to its narrow width. At home on wet rock cliffs, usually limestone, it can take the constant damp or drip. Its graceful long fronds and light stems are beautiful and decorative. My own first sight of a real dripping ledge was in just such a lovely quiet place near but out of the bounds of Starved Rock State Park where we had permission of the owners to remove some square foot pieces of this lovely fern to duplicate a dripping ledge at the Century of Progress in 1933. The first sight of that ledge with the long fronds moving and swaying in the spray of water will never be forgotten. Tho this is the preferred habitat, the bulblet is found also on damp mossy banks, and in shaded ravines. Thus we found it here at Fernwood — several sizeable colonies along the east side of the long watery place where marsh marigolds hold forth in spring. Memory is vivid of one day our first summer here when, pushing thru briars, brambles and fallen branches, I saw the first patch of these lovely ferns, then another and another. From these colonies, individual plants were later taken to start other colonies in likely places — mainly on the wet gravelly



banks near the Summer House. The new patches spread fast and the ones robbed are renewed in a short time because of new plants growing quickly from the little bulblets on the back of fertile fronds. Dropping to the ground when mature, they start new plants much faster than can be grown from the spores. Of course, they give the fern its common name.

5. *Cystopteris fragilis*, the other bladder fern, of worldwide distribution, has shorter fronds but is just as delicate in very early spring. This one, too, likes damp rocks, but it seems happy in any shady spot and increases rapidly to make a mat of little crowns. Its common name comes from the fact that it turns brown early and succumbs to first frosts. Several spreading patches at Fernwood are a joy each spring.

6. *Asplenium platyneuron*, the ebony spleenwort, is one of two aspleniums in the rock garden now. It has some characteristics that make it unusual and attractive and at least one which is maddening and frustrating. Usually seen on a steep bank, the fertile fronds stand boldly erect, six to twelve inches tall. They are deciduous or only partially evergreen. The shorter sterile fronds come later, hug the ground in a rosette, and are evergreen. These ferns would be so welcome and so interesting if they would just stay, but at Fernwood and in at least three other locations I have known, they have crowded steep hillsides or roadside banks for a time, then disappeared in toto — the *whole group*. Such a steep bank of many large specimens, close together and beautiful was discovered one year here by Dale Hagenah in a place we had passed hundreds of times by car or on foot. We revelled in them for a few years but then they suddenly disappeared, leaving only a few in that area. Last year only two could still be found!

7. *Asplenium trichomanes*, the little maidenhair spleenwort, is more obliging and settles into shady pockets and crevices wherever we want their rosettes of delicate fronds to add a spot of beauty. We can never get enuf of these and try to plant a few more in rock garden and outcrop each year. Dainty is the word for this one, with its thread-size stems and small graceful fronds of tiny pinnules. It appears here and there thru nearly all of North America tho the only dots marking its locations on the map of Michigan are in the upper peninsula, "infrequent" in seven countries.

8. *Camptosorus rhizophyllus*, the walking fern, boasts only three county dots in northern Michigan tho it is found in the limestone areas of many other states. The frond, rounded or heartshaped at the base, is long-tapering to a fine pointed tip which upon touching the soil often takes root and starts a new plant. This one then grows and sends out its own rooting tips. In a thick mat, sometimes three generations are still fastened together. It likes to cover mossy rocks, especially limestone, or sometimes mossy roots or fallen branches. A fascinating little fern, amiable in cultivation, and perfect in a terrarium. The sori at first glance seem scattered in a haphazard way but in reality are connected to the netted veins to make mixed-up patterns.

9. *Adiantum pedatum aleuticum*, the Aleutian maiden-hair, in one of these small areas in the Rock Garden, is a smaller replica of our beautiful native maiden-hairs — about eight inches tall.

10. A more dwarf form is only three or four inches tall with the little circular fronds in correct proportion. There is disagreement about the name — some call this one “aleuticum”, others have called it “imbricatum”. If, with or without these names, there is added “Carl English form”, then it is pegged as our true dwarf. Dr. English, who discovered this wonderful gem in the Olympic Mountains in the early 50’s was for a long time the only one who knew the location of its habitat. I first heard of it from Harold Rugg, whom I met on the New York trip. At his suggestion a written request brought my first plant from Dr. English. This began a spasmodic correspondence about ferns and rock plants which lasted many years. In 1971 at a luncheon of the American Horticultural Congress in Milwaukee, a gentleman asked to take the empty chair next to me and quietly introduced himself to all as “Dr. English, Seattle.” I said “Not Carl English?” “The same.” A most friendly and enjoyable conversation ensued about his little fern and our letters over twenty years. It was to me astonishing (and exciting) that the next evening he and I received identical awards, the only two of these given that year. The next year, at a similar Congress in Seattle, he kindly took us in his car to see gardens, plants and places long read about. His death this year takes from the country a very fine contributor to its horticultural and botanical scene. Because of this association as well as its own charming small-size perfection, this will always remain perhaps top favorite of Fernwood rock ferns.

11. *Adiantum venustum don*, was also introduced to me by Mr. Rugg. From England, he had received this plant which captivated all of us in his garden at the time of the New York fern trip. Of course, I couldn’t rest until I had one for Fernwood. He gave me the address of the English nursery and to make it a reasonable order I added other ferns. Only two or three of all of them lived through the rigors of delayed quarantine and the maidenhair was *not* one of them. When I reported the disappointment, he divided his own and sent me a piece! There was no rock garden then so it was planted in a sheltered corner of the Winter House steps and part of this original plant is still there. Many pieces have been moved to three locations in the rock garden and some of these last year started a new groundcover path just outside the new little screened porch at the Winter House. Its airy grace on wiry stems, sturdy constitution, beautiful fresh green color in spring and dark leathery green in winter make it a plant to be cherished.

A more recent addition to the rock garden came also from England, this time by way of Mr. Harold Epstein. It was found, I believe he said, in an old wall and that is all I know of it except that it is a perfect tiny replica of a big lady fern — the whole rosette of delicate fronds in spring only two to three inches across. Unbelievable, is this one which seems a good one with which to end this tale of twelve rock garden ferns which include some of the very best ones — until the next time when I’ll no doubt be carried away by some of the small aspleniums and may be expected to declare some of *them* my top favorites!

Reprinted from Fernwood Notes, No. 123 (May 1977)

MINIATURE IRISES FOR THE ROCK GARDEN

Earl Roberts, Indianapolis, Ind.

During the past nine years we have experimented in growing the mini-iris in our rock garden. We have enjoyed learning about the various demands of the different wild species as well as named varieties. In this article we will adhere mainly to the species we like best.

It is perhaps unfortunate that a few of the very loveliest plants seem to be the hardest to maintain except under near ideal conditions. Among these are *I. arenaria* from central Europe, a 4 inch golden yellow stoloniferous beauty that opens its flowers only on sunny days, showing its flat-falled colors until about noon, then closing with a twisting spiral, unique among irises. The taller 8 inch *I. flavissima*, central Europe into eastern Siberia, is identical in color and growth habits, blooms even more heavily than *I. arenaria*. Both prefer a well drained sandy soil on the south side of the rock garden where their roots can snuggle up under some rocks for warmth. Although not too fussy, they do like a dry hot summer without too much rainfall. There are two other rather exotic members of this 22 chromosome family. Most unusual for coloration is *I. bloudowii*, about 6 inches tall, bright yellow with a distinctive black 'cat's whiskers' on the flat falls. We finally found a spot it liked on the very top of the rock garden in nearly pure sand and gravel. Last in this section is a very rare iris from near Irkutsk in eastern Siberia, *I. potanini*. While it also has 22 chromosomes, it is not stoloniferous but contains itself in a neat clump for years. Flowers are the usual bright yellow but larger and wider petaled than the others. For us it has always bloomed down in the narrow grassy foliage. While not a fast increaser, it tends to transplant rather easily and is quite hardy here where temperatures drop below zero each winter.

Among the better known 40-chromosome species are two good additions for the rock garden, and two not so good. The best is the true *I. chamaeiris* as collected in southern France and northern Italy. The true species is hard to locate and one must beware of many nurseries offering this iris for sale under certain names. Almost always these are not worth growing in the rock garden. We have only five varieties that were collected in the wild by Dr. Randolph, Cornell University, back in the 1950-60s. These are quite short in foliage and bloom stalks, usually 4 to 6 inches; three are purples and two are yellows. Crossing the two colors gave more purples and yellows with only minor variations in color/form. These make ideal rock garden subjects and well deserve more attention. Since they are indigenous to the Mediterranean area, it is wise to mulch when temps go into the teens.

I. italica is the second good addition and is a taller version of *I. chamaeiris*, growing to 8-12 inches in good soil. One of the best of these is species F1A, a rare yellow mutant collected at Frejus, France. It is hardy here. The two not-so-good varieties are *I. olbiensis* and *I. viressens* (this latter from Switzerland). Both are larger flowered and coarser and could only appear in proportion planted by a very large rock. *I. olbiensis* does have one credit in its ability to rebloom in late summer and the two-toned blue-purple flowers are interesting at that time.



View of Earl Roberts' Garden

Author's photo

For an unusual color combination, the three forms of *I. barthii* of Roumania and the Russian Kuban, are ideal. The named variety 'Laurin' (Hanselmaier) is a nine inch tannish flower with an electric blue beard for contrast. A form from the Russian Kuban has lovely five inch tall pale yellow flowers with a greenish spot on the falls and a blue beard. A newly collected form from a German correspondent is creamy-gray over pale green falls, a light blue beard. Although these varieties have been counted as 36-37 chromosomes, they are fertile and quite easy to grow.

Perhaps a better known species is *I. mellita*, requiring decent drainage, slight winter protection, and frequent transplanting to new soil. These are 24 chromosome diploids and really not at all hard to increase and maintain, but their color range is quite limited. The most common species is a tawny yellow rather heavily lined in brown, growing about 3-4 inches tall. The short leaves are unusually distinctive with their falcate (sickle) shapes hugging the ground. From a German botanical garden we have one form with a greenish-yellow cast, slightly larger in flower. From seeds collected near Konotope, Czechoslovakia, we have raised one with tawny green flowers and a greenish beard. Without doubt the most beautiful *I. mellita* was raised from a cross of the yellow form with a purple collected in Turkey. It is about 5 inches, a very vibrant rich purple, extremely floriferous. We call it *I. mellita* 'Ayazaga' in honor of the locale from which the original specimen was collected.

A sub-variety of *I. mellita* could be the one known as *I. rubromarginata*, distinguished by a red edge to the leaves at certain times in the spring, later becoming all green. Color is normally a light purple.

Finally, we come to that group of mini-irises that, in our opinion, are the royal peers in the rock garden. *I. pumila* exhibits the greatest diversity of color forms of any species of bearded irises. Extremely fertile both ways, they are tetraploids of 32 chromosomes (four sets each of eight) with a few of the USSR forms having only 30 chromosomes. So far, all the pumilas tested have an inhibitor for the anthocyanin (purple) pigments of tall bearded irises with which they readily cross to form the well known 'Lilliput' hybrids, 10 to 15 inch clumps of near ideal proportions. A lone specimen from the island of Crete, *I. cretica*, a smoky-lavender beauty, when crossed to tall plicatas does produce more plicatas, thus causing one to think it does NOT have this inhibitor, for otherwise the purple plicata marks could not appear.

All other pumilas may be easily divided into two separate groups: the Western group generally larger/flowered, wider-petaled, coarser foliage, more vigorous plants; and the Eastern group with flowers smaller and daintier, sometimes with a long perianth tube, foliage narrowed and grassy, plants a little more difficult to keep happy, requiring new soil every year or two.

We deal first with the western group— from Austria, Czechoslovakia, Hungary and Yugoslavia. Our special favorite for petal width is a fine vigorous purple from Austria, A19A. In six years planted in the same garden spot it has spread from a foot square to an area of 24 x 36 inches, a very compact mass of rhizomes, just covered with blooms in late April. On the other hand Austrian #100, a rare white pumila, increases very slowly. We grow two collected pumilas that were fine enough to name: 'Lilablanka' (Kurzmann) an unusual orchid with a white area at the hafts, falls tucked almost completely under, and — 'Vindobona' (Hanselmaier), almost alone in its brownish-red tones with blue beard. From Czechoslovakia the best color and form is Dr. Randolph's 61-73D collected near Porzdrany. A gorgeous little thing with flatly flaring falls, a very dark violet self including beard. Dr. Milan Blazek (Czechoslovakia) has sent many collected pumilas, among the more unusual being v3K from Konice, a variegata pattern (yellow over brown falls) with a bright orange beard. Yellow or orange beards seem to be very rare among pumilas, perhaps a recessive color. Those pumilas from Yugoslavia are probably the largest flowered as a whole class. One of the best for floriferousness is Y9C, a shiny wine-toned purple, collected near Belgrade. Serbian S-6 is a very nice dark blue, vigorous and easy.

The ones from Hungary are on the borderline between the Eastern and Western groups. Blazek's orF collected at Fuzer is a nice yellow bitone (light yellow standards over darker yellow falls) and has that yellow beard. His MF stands out all alone in its colors of blue-gray standards over green-yellow falls and has the tucked under falls of many of these wild species. Both of these pumilas are more intermediate in size of flower, and very slow of increase.

Among the eastern group, two from Bulgaria are worthy of mention. They are VB1, a light tan variegata, and VB2, a darker brown variegata. What makes them so unique is their tiny size and daintiness, both no more than three inches tall with very short foliage. These are just ideal

rock garden subjects. The pumilas from Roumania known as *I. pumila* var. *heliotropii* certainly take precedence for garden fragrance, are quite vigorous, easy to grow and maintain. We have three forms, all purples, in a garden row about two feet by six feet. They are so fragrant that down wind they perfume an area 20 to 30 feet distant. We strongly urge gardeners to try these pumilas. One more Roumanian worth mention is sub-variety *I. suaveolens* with yellow standards and brownish-red falls edged in yellow PLUS a bright yellow beard. This one is quite short and neat.

Finally we come to those pumilas from the USSR, probably our favorites. From Dr. Randolph's collection is R15J, a super-clean greenish toned yellow that blooms heavily. Also the small flowered, six inch tall R32, a medium violet color which was collected in Armenia near the Turkish border. From seeds sent us from a Russian botanical garden we have grown a most distinctive strain in rosy-lavender tones, some with nearly maroon falls outstandingly edged in the closest to pink we have seen in pumilas. The beards in most cases are blue to lavender, a few white. They grow up to six inches on long perianth tubes; all are small flowered, their one fault being a lack of vigor — very slow to increase.

I. taurica, USSR, is seemingly a sub-variety of *I. pumila* having the usual 32 chromosome count, but leaves much wider and blunt-tipped. We have seen only purple forms so far but hope to grow more colors from seeds. Most unusual is their long slender perianth tube sometimes reaching to six inches, flowers being small in size. In the *I. pumila* family it is normal for seed pods to set directly on the ground, but in these with longer tubes, we have found pods one to two inches above ground level.

To summarize — all the miniature irises discussed here will do very well in a sandy loam, should be fertilized 6-24-24 just after their early blooming and perhaps again in mid-summer, and replanted every two-three years to fresh soil. Since they are very shallow rooted, mulching over winter may help to prevent frost heaving in spring thaws. A few still may heave out of the ground in spite of all care. These could best be handled by keeping handy a large bucket of small pea size rocks and sand to throw around and under the rhizomes. With our hundreds of wild species we have this problem every year but seldom lose many. We garden in the midwestern U.S. at 40 degrees latitude where temperatures range each year from the low 90s to minus 10 degrees F. (38C to 0C).

Join the fun in growing the wild species irises. Then you may want to try hybridizing with them and producing your own line of novelties. New colors are constantly showing in our pumila seedlings, the newest being dark maroon-reds with yellow beards, white standards over blue falls edged white, etc. We are always looking for cleaner colors, better forms, and VIGOR!

FOR SALE:

Large selection of books on alpines including many Farrer, also complete set of AGS Bulletin and various other periodicals.

C. S. Van Houten

1043 Fairport Rd., Fairport, N.Y. 14450

ELMER BALDWIN

Among the many pleasant happenings at this year's Valley Forge Annual Meeting was the recognition given to Elmer Baldwin with a citation from the American Rock Garden Society which you can read in this issue. There is the record of our appreciation for the successful organization of that valuable resource that we have in the ARGS Slide Library. The catalogs that Elmer prepared as the collection grew in response to his kindly urging were models of care in indexing.

For the American Primrose Society Elmer served as Seed Exchange Director and in their quarterly in 1961 is an article by Hilda and Elmer Baldwin which pictures as clearly as I have ever seen the especial service that a seed exchange provides for a plant society with a widespread membership. Also one sentence epitomizes Elmer's devotion to any project that he undertook: "The program never starts or stops — it continues."

Elmer compiled the much admired *Cultural Chart for Certain Species of the Genus Primula* which is distributed to the members of the primrose society. It was typical of him, — of his care in research and of his equal care to ensure that the results of that research were available to all.

In his last letter to our president acknowledging the receipt of the citation for The Award of Merit he wrote, "I have often stated my primary motive for taking over the (slide) library responsibility was prompted by the opportunity it presented for seeing such a great number of plants growing and flowering in nature, which otherwise would be denied me. This has been ample compensation for the — at times — 'overtime' involved."

As a gardener, Elmer's interests were broad. His greenhouse and outdoor areas reflected his enthusiasm for investigating the beauty and use of a great many plants. He had rewarding success with many unusual subjects indoors and out. I believe that the first herbarium sheet record in the L. H. Bailey Hortorium of a cultivated plant of *Polygonatum hookeri* came from his garden.

The Syracuse area gardeners with whom he freely shared his knowledge, his world-wide circle of correspondents and all fellow plant society members are bereft of a good and wise counselor. B.H.

AMERICAN PRIMROSE SOCIETY
offers

Quarterly publications beautifully illustrated, an international seed exchange of approximately 100 different Primulas and a culture chart to assist in the growing of species Primulas.

U.S.A. \$7.00 per year

Edward L. Pincus, Treasurer
11813-100th N.E.

Kirkland, Washington 98033

THE AMERICAN
PENSTEMON SOCIETY

Cordially invites you to join its growing list of enthusiastic members.

If you are interested in Penstemons, you will be interested in the activities of the society.

Write to the Secretary,
Howard McCready
1547 Monroe St.
Red Bluff, Calif. 96080
for Particulars

Rock Plants, Alpines, Dwarf Conifers,
Dwarf Shrubs etc. Many Rare
"Get Acquainted Special"

6 Hardy Sedums Labeled \$3.00 Postpaid
Descriptive Rock Plant Catalog 50¢

RAKESTRAW'S PERENNIAL GARDENS

G 3094 S. Term St., Burton, Michigan 48529

**Grower of
ROCK PLANTS, HERBS
PERENNIALS
ANNUALS**

Large Selection, Field Grown

No Catalog

All Plants for Sale at Nursery Only

SAMUEL F. BRIDGE, JR.

437 North Street
Greenwich, Conn. 06830

THE ROCK GARDEN

Maine Hardy Plants

Choice Cultivars — Uncommon Species
Grown and Mailed in Peat-lite

New Varieties Annually

Seedlings from Several Exchanges
and other European Sources

Many Ericas and Callunas

Mail Order Catalog 40¢

LITCHFIELD, MAINE 04350

MINIATURE GARDENS

cultivator of unusual plants
Choice alpines, dwarf conifers,
unusual perennials,
rock garden treasures,
dwarf ornamental shrubs
Catalog \$1.00

We ship to the U.S.

Box 757, Stony Plain
Alberta, Canada T0E2G0

**"PLANT JEWELS
OF THE HIGH COUNTRY"**

Sempervivums — Sedums

by Helen E. Payne

The first book written and published in
the U.S. on these two fascinating plant
types—A handsome 7 x 10 design with
158 pages and 111 color plates—covering
187 species hybrids, varieties, etc. A book
every rock gardener should have—or any-
one interested in the exotic, beautiful and
amazing "Hen and Chicks."

\$15.00 Postpaid



ALSO AVAILABLE

**"Wildflower Trails of the
Pacific Northwest"**

by Art Chipman

156 pages — 236 color pictures
6 x 9 hard back — \$15.00



Pine Cone Publishers

2251-A Ross Lane, Medford, Oregon 97501

SISKIYOU RARE PLANT NURSERY

Our catalog offers an unrivaled selection of the world's most
unusual and desirable alpine, native and rock garden plants.

50 cents brings our catalog. Cost refunded first order.

Sorry we cannot accept Canadian or Foreign orders.

L. P. Crocker

B. C. Kline

522 Franquette Street, Medford, Oregon 97501

GULL HARBOR NURSERY

Specializing in Rock Garden and
Perennial Plants

Over 200 species, including

**LEWISIA COTYLEDON,
PULSATILLA VULGARIS,
GENTIANA ACAULIS**

and

CYCLAMEN NEAPOLITANUM

3942 Gull Harbor Rd.

Olympia, Wash. 98506

PHONE 943-0394

Weekends Only — March 1-July 15

PACIFIC HORTICULTURE,

a magazine about plants and
gardens of the west. Pub-
lished quarterly, U.S. \$6, for-
eign \$7.

All four 1976 back issues
U.S. \$7—Foreign \$8, incl. postage

HALL OF FLOWERS

Golden Gate Park
San Francisco, CA 94122

J. A. MARS of HASLEMERE

HARDY CYCLAMEN — freshly lifted tubers, **DWARF BULBS** — many
uncommon and rare, including old fashioned wild Daffodils, **HARDY
ORCHIDS, CYPRIPEDIUMS, PLEIONES.**

SNOWDROPS

We now have an exceptional and unique collection of over 40 species and hybrids.
A wonderful opportunity to add to your collection or start one.

Please send for our catalogue.

J. A. MARS of HASLEMERE

HASLEMERE, SURREY, GU27 3DW, ENGLAND

SEDUMS and SEMPERVIVUMS

Pink, Red, Purple, Blue and Green

Hardy Named Varieties

Trial Collection

10 for \$6.00 Postpaid

List 25¢

Sempervivums Wholesale

OAKHILL GARDENS

Helen E. and Slim Payne

Rt. 3, Box 87J Dallas, Oregon 97338

PLANT JEWELS OF THE HIGH COUNTRY

Sempervivums and Sedums

by Helen E. Payne

111 Full Color Photographs

Graphographed Copies \$8.50 Postpaid


ERICACEAE

Specialists in

**Azaleas,
Rhododendrons,
Dwarf Evergreens
and Rock Plants**

For sale at nursery only.

Catalog 50¢

1159 Bronson Road
Fairfield, Conn. 06430

GARDEN ROCKS FOR SALE
Wholesale & Retail

at location in the
ILION GORGE, ILION, NEW YORK 13357
Calcareous Tufa, also called "Horsebone"
The proper kind of stone for rock gardens and
Religious Grottos. Large variety in size, shape
and appearance.

In large quantities—\$25.00 per ton

In small quantities—\$2.00 per Bu.

2¢ per lb.

Selected specimens somewhat more

Depending on size and appearance

JOSEPH T. FERDULA

300 Litchfield St., Frankfort, N.Y. 13340

TOM THUMB NURSERY Inc.

Dwarf and Exotic

CONIFERS

South Blvd. at the Big Red Mailbox
Upper Grandview, Nyack, N.Y. 10960

914—358-3269

Open daily

10 A.M. - 6 P.M.

Jewels of the Plains — delays continue to
plague the publication of my book, now
expected in 1977.

Meantime: extensive Hardy Cactus propaga-
tions and seeds of Hardy Cacti are ready
for spring shipment; also seeds of selected
forms and colors of *Yucca glauca* and of a
few other Great Plains species. Lists on
request.

CLAUDE A. BARR

PRAIRIE GEM RANCH

Smithwick, S.D. 57782

ROCK GARDEN PLANTS
& GROUNDCOVERS

"plants for dry sunny areas
and those shady corners"

Easy things for beginners,

Also some Alpines and Primroses.

Send 25¢ with request

for list to:

Woodland Rockery

6210 Klam Road

Otter Lake, Michigan

48464

WATNONG NURSERY

The place to find some
"HARD TO FIND" PLANTS

Gaylussacia brachycera

Dwarf Conifers, *Leiophyllum*, dwarf & low
growing *Rhododendrons*, *R. yakusianum* &
several of its hybrids

By Appointment, at the Nursery Only

Hazel and Don Smith

201 — 539-0312

Morris Plains, New Jersey 07950

THE WILD GARDEN

Box 487

Bothell, Washington 98011

My nursery offers a selection of 570 rock
plants, wildflowers, and ferns from many
lands; tough plants for rough areas; cushion
plants and tuftlets worth your choicest soil;
plants for sun-dry gardening, bogs, shade,
miniature landscaping; many plants new to
North American gardening and not available
elsewhere. I describe all these in a \$1.00
catalog (mailed at cost), with words of honesty
and very little helium. — G.S.

DWARF CONIFERS, ALPINE PLANTS
SEMPERVIVUMS, HOSTAS,
BAMBOOS, ORNAMENTAL
GRASSES, EXOTIC MAPLES

Large illustrated Catalog 50¢

Plants also available at the nursery

Telephone: 215-536-4027

PALETTE GARDENS

26 West Zion Hill Road

Quakertown Pennsylvania 18951

RARE PLANTS and
SHRUBS

Dwarf slow growing conifers that
stay dwarf and other shrubs all
suitable for Bonsai culture.

Large collection of Alpines as well
as unusual plants are listed in our
catalogue.

ALPENGLOW GARDENS

13328 King George Highway
Surrey, B.C. Canada

THE FERN GUIDE

Northeastern and Midland U.S. and Canada, Dr. Edgar T. Wherry, 2nd reprint, paperback, 318 pages. Clearly illustrated, enlarged details useful for identification. Culture of each species discussed. \$3.00 postpaid. Quantity discount to dealers.

Morris Arboretum

9414 Meadowbrook Ave.
Philadelphia, Pa. 19118

HARDY ALPINES & DWARF CONIFERS

Many new additions in our new catalog. Descriptions and cultural information.

Catalog, 50 cents

ALPINES-WEST NURSERY

Rt. 2, Box 259
Spokane, Washington 99207

TREASURES ON THE TRAIL

Book II—Edible Wild Plants

A wealth of little-known information on a dozen edible wild plants, with actual pressed specimens of each plant (preserved in plastic) collected in the Baltimore area.

\$5.00 postpaid

J. DANIEL SAFFER

204 E. Chase St., Baltimore, Md. 21202

ROCK GARDEN PLANTS

Androsace

Dianthus

Gentiana

and many others

No Catalog—Cash & Carry

Please call (617) 883-6697

FRANK A. JARVIS

Quaker Street, Millville, Mass. 01529

ORCHID GARDENS

Over 150 Native Plants, Ferns, Club-mosses, Shrubs, Ground Covers, offered in our Copyrighted Wildflower Culture Catalog.

Send 35¢ for your copy

All plants carefully dug and expertly packed to arrive in top condition

Mr. and Mrs. Clair Phillips

Route 1, Box 245

Grand Rapids, Minnesota 55744

Sorry we cannot accept foreign orders

Cold Climate Cactus and Succulents

Plants which live through below zero winters

List .40 Cents

Pictorial Book \$3.25 ppd.

Also Succulents from South Africa and other Cactus

all of which are frost tender

List \$1.10 extra

BEN HAINES

Dept. 77RGB

1902 Lane, Topeka, Kansas 66604

ALPENFLORA GARDENS

17985 - 40th Ave., Surrey, B.C., Canada

Six miles north of U.S. border, off Pacific Highway. Two miles south of Cloverdale.

Floriferous rocky plants, choice perennials and alpines, some dwarf shrubs.

Quantity discounts; mail orders welcome

Plant list available.

Open weekends and holidays only.

STONEHURST RARE PLANTS

DWARF AND UNUSUAL CONIFERS

(OVER 800 VARIETIES)

DWARF SHRUBS

DWARF RHODODENDRONS

LIST AVAILABLE

Mail Order Now Possible

1 Stonehurst Court, Pomona, N.Y. 10970

914-354-4049

THE ALPINE GARDEN SOCIETY

Membership of the Alpine Garden Society puts the American alpine gardener in close touch with those throughout the world who share his interest in one of the most absorbing branches of horticulture.

The Quarterly Bulletin of the A.G.S. is respected internationally as one of the most informative publications of its kind. It will bring into your home a distillation of the experience and ideas of some of the finest gardeners, plant explorers and horticultural thinkers of our time.

Among the many other benefits of the Society, its uniquely comprehensive seed list alone is worth more than the modest subscription of \$8.50 for Overseas Members. Apply to:—

The Secretary, The Alpine Garden Society,
Lye End Link, St. John's, Woking, Surrey, England

THE SCOTTISH ROCK GARDEN CLUB

Offers you . . .



its twice yearly Journal, well illustrated and containing authoritative articles on all aspects of rock gardening, rock plants, and their world wide haunts.

Its excellent annual scheme for the distribution of rare & unusual seed, amongst its international members.

for £2.50 per year (\$5.00)

R. H. D. Orr, C.A. 70 High Street, Haddington
East Lothian, Scotland will be glad to send particulars.

THE ALPINE GARDEN SOCIETY'S PUBLICATIONS,

WRITTEN BY ACKNOWLEDGED EXPERTS IN THEIR OWN SUBJECTS, OFFER OUTSTANDING VALUE

THE GENUS LEWISIA By R. C. Elliott

The only monograph on this fascinating American genus \$1.50

SAXIFRAGES By Winton Harding

A guide which should be read by every rock gardener \$1.50

ALPINES IN SINKS AND TROUGHS By Joe Elliott

A most useful guide by one of our best known nurserymen \$1.50

THE GENUS CYCLAMEN By D. E. Saunders

The most up to date book on this wonderful genus \$1.70

ASIATIC PRIMULAS By Roy Green \$6.00

DAPHNE By Chris Brickell and Brian Mathew \$6.00

THE WORLD OF ROCK PLANTS The Report of the 1971 Conference \$5.20

MANY OTHER INTERESTING GUIDES AT \$0.80 EACH, INCLUDING:
THE PROPAGATION OF ALPINES — BULBS UNDER GLASS — A GARDENER'S GUIDE TO SEDUMS

(All prices postpaid)

AGS Publications are available ONLY from:

D. K. HASEL GROVE, Distribution Manager, 278/280 Hoe Street, Walthamstow, London E17 9PL, England

YOUR ARGS STORE

1. ARGS BULLETINS, back issues. Refer to CUMULATIVE INDEX and listing in this issue for subjects, availability and prices.
2. ALASKA-YUKON WILDFLOWER GUIDE, Helen A. White (Ed.), paper only, many color plates and b & w sketches \$6.00
3. SEED GERMINATION REPORT, Dara E. Emery (Ed.), data on selected species and forms by various reporters \$1.00
4. THE ROCK GARDENER'S HANDBOOK, selections from ARGS Bulletin back issues (1965), hard cover \$1.50
5. LIBRARY BINDERS, each holds two years \$3.00
6. ARGS EMBLEMS, lapel or safety-clasp pins. Specify \$3.00
7. ARGS SHOULDER PATCHES, washable \$2.00
8. CUMULATIVE INDEX to ARGS Bulletins, Vols. 1-32, incl. NC
9. ARGS SLIDE LIBRARY CATALOGUE NC

Please order from the ARGS Secretary, 3 Salisbury Lane, Malvern, Pa. 19355. All orders prepaid (foreign orders in U.S. funds, please); make checks or Postal Money Orders payable to "ARGS," (no cash). U.S. destinations **must** show ZIP code. Orders will be sent surface mail, postpaid; airmail charges billed at cost.

BULLETINS FOR SALE — Back Numbers

Available at \$1.00 each

Vol. 11, No. 4	Vol. 26, Nos. 2, 3 & 4
Vol. 13, Nos. 3 & 4	Vol. 27, Nos. 1, 2 & 4
Vol. 14, Nos. 2, 3 & 4	Vol. 28, Nos. 1, 2 & 4
Vol. 15, No. 3	Vol. 29, Nos. 1, 2 & 4
Vol. 19, Nos. 1 & 4	Vol. 30, Nos. 1, 2 & 4
Vol. 21, No. 3	Vol. 31, Nos. 2, 3 & 4
Vol. 22, No. 3	Vol. 32, Nos. 1, 3 & 4
Vol. 23, Nos. 1, 2 & 4	Vol. 33, Nos. 1, 2, 3 & 4
Vol. 24, Nos. 2, 3 & 4	Vol. 34, Nos. 1, 2, 3 & 4
Vol. 25, No. 4	

All Nos., Vol. 1 thru 10, & any Nos. in Vol. 11 thru 33, not specifically listed above, are \$2.00 each, when available. Please inquire as to availability.

"BARGAIN PACKAGE"

Large stocks of certain numbers permit ½-price offer — ten numbers at \$5.00, Society's selection, but your stated preference will be observed, if possible.

* * * * *

For specific articles as listed in the Cumulative Index, give Vol. & pages listed. Issue will be sent, if available; otherwise, a charge of 15¢ per page for duplication from file copy.

Please remit with order; foreign orders in U.S. funds, please. Shipments postpaid, except airmail (billed at cost). Please make checks/money orders payable to:

AMERICAN ROCK GARDEN SOCIETY

3 Salisbury Lane

Malvern, PA. 19355

DIRECTORATE

AMERICAN ROCK GARDEN SOCIETY

President Emeritus

HAROLD EPSTEIN, 5 Forest Court, Larchmont, New York

President JAMES A. MINOGUE, Rt. 1, Box 126A, Bentonville, Va. 22610
Vice-President ELEANOR BRINCKERHOFF, Rt. 2, Georgetown, Conn. 06829
Secretary WILLIAM T. HIRSCH, 3 Salisbury Lane, Malvern, Pa. 19355
Treasurer FRANCIS H. CABOT, Cold Spring, N.Y. 10516

Directors

Term Expires 1978

Mrs. Edward (Fran) Lubera Frederick W. Case, Jr. Mrs William (Marnie) Flook

Term Expires 1979

Harry Elkins Wayne Roderick Sharon Sutton

Term Expires 1980

Norman C. Deno Mrs. Louis (Molly) Grothaus Ms. Deon R. Prell

Director of Seed Exchange

Frances Kinne Roberson
1539 NE 103rd St., Seattle, Wa. 98125

Director of Slide Collection

Quentin C. Schlieder
Box 1295-R, Morristown, N.J. 07960

CHAPTER CHAIRMEN

Northwestern SHARON SUTTON, 8235 NE 119th St., Kirkland, Wash. 98033

Western WAYNE RODERICK, 166 Canyon Drive, Orinda, Ca. 94563

Midwestern AILEEN MCWILLIAM (Acting Chm.), 711 Magnolia St.,
Mena, Ark. 71953

Allegheny CLARE R. WILLIAMSON, 117 Woodridge Dr., Carnegie, Pa. 15106

Potomac Valley MRS. WILLIAM G. BANFIELD, 15715 Avery Rd., Rockville, Md. 20853
Co-chairmen

MRS. HERBERT L. KINNEY, 3611 King William Dr., Olney, Md. 20832

Delaware Valley ANITA H. KISTLER, 1421 Ship Road, West Chester, Pa. 19380

New England MRS. FREDERICK BALDWIN, 105 North St., Foxboro, Mass. 02035

Great Lakes EARL R. ROBERTS, 5809 Rakke Road, Indianapolis, Ind. 46217

Wisconsin-Illinois DONALD PEACH, 5966 Kurtz Rd., Hales Corners, Wisc. 53130

Columbia-Willamette KENNETH J. LOVE, 3335 N.W. Luray Terrace,
Portland, Ore. 97210

Connecticut RONALD A. BECKWITH, Li-chiang Gardens, 12 Grant Avenue,
Southampton, MA 01073

Long Island WILLIAM E. BROWN, 4 Wellsley Ct., Coram, N.Y. 11727

Hudson Valley QUENTIN C. SCHLIEDER, Box 1295-R, Morristown, N.J. 07960

Minnesota MRS. HUGH COCKER, 4140 Highway 14 East, Rochester, Minn. 55901

Siskiyou MRS. ARDEN PINKHAM, Box 3614, Central Point, Ore. 97502

Western-No. Carolina FRED REES, Rte. #1, Saluda, N.C. 28773

Rocky Mountain T. PAUL MASLIN, 819 14th St., Boulder, Co. 80302



Rhododendron keiskii 'Yaku Fairy'

