BULLETIN of the AMERICAN ROCK GARDEN SOCIETY including SAXIFLORA

July-August, 1945

No. 4

CONTENTS:-

Vol. 3

Page

49-Acidity in the rock garden	
50-Low shrubs for a dry sunny exposure	Helen M. Fox
53—Happy Valley	Sarah A. Hodson
54-A rock garden Tradescantia	Mrs. H. P. Magers
55-First Annual Show of the American Rock	Garden Society
59-The jewel-case garden	P. J. van Melle
61-Seed-sowing media	H. Lincoln Foster
62-Keep Out: Violet Oxalis	E.T.W.
63—Rock Garden Quiz	
64—The American Rock Garden Society	

Published by the American Rock Garden Society and entered in the United States Post Office at Plainfield, New Jersey, as third class matter; sent free of charge to members of the American Rock Garden Society.

DIRECTORATE

BULLETIN

Editor		Dr. Edgar T. Wherry	University Pennsylvania
Associate	Editors	Carl S. English, Jr	Seattle, Wash.
		Mrs. J. Norman Henry	Gladwyne, Pa.
		Peter J. van Melle	Poughkeepsie, N. Y.
Exchange	Editor	Harold Epstein	Larchmont, N. Y.
Chairman	Editorial Comm	Mrs. C. I. DeBevoise	Greens Farms, Conn.
Publishin	g Agent	Arthur H. Osmun	Plainfield, N. J.

AMERICAN ROCK GARDEN SOCIETY

President	Arthur Hunt Osmun	Plainfield, N. J.
Vice Presidents	Mrs. C. I. DeBevoise	Greens Farms, Conn.
	Dr. Ira N. Gabrielson	Washington, D. C.
THE STORES	Roland D. Gamwell	Bellingham, Wash.
	Miss Elizabeth Gregory Hil	L.Lynnhaven, Va.
	Dr. H. H. M. Lyle	New York City
	Mrs. G. H. Marriage	
Secretary	Walter D. Blair	
Treasurer	Mrs. George F. Wilson	Easton, Pa.
Directors	Walter D. Blair	Tarrytown, N. Y.
	Peter J. van Melle	Poughkeepsie, N. Y.
	A. C. Pfander	Bronx, N. Y.
	Mrs. J. M. Hodson	Greenwich, Conn.
	Mrs. Clement S. Houghton	Chestnut Hill, Mass.
	Marcel Le Piniec	Bergenfield, N. J.
	Harold Epstein	Larchmont, N. Y.
	Kurt W. Baasch	Baldwin, L. I.
	Leonard J. Buck	Far Hills, N. J.

REGIONAL CHAIRMEN

Northwestern	Carl S. English, Jr.	Seattle, Wash.
Oregon Sub-group	Warren Wilson	Portland, Oregon
Western	Frank J. Richards	North Hollywood, Cal.
Northern	Mrs. Warder I. Higgins	Butte, Mont.
Rocky Mountain		
Central		
Kansas City Sub-group	Mrs. M. A. Kovachoff	Kansas City, Mo.
Lakes	Robert M. Senior	
South Atlantic	Mrs. Charles W. Mason	
Middle Atlantic		and the state of t
North Atlantic	Harold Epstein	Larchmont, N. Y.
New England	George Graves	Boston, Mass.
Maine Sub-group	Francis O. Libby	South Portland, Maine

The American Rock Garden Society, incorporated under the laws of the State of New Jersey, invites you to join with its members in the pursuit of a better understanding of the problems of rock gardening. The annual dues are \$3.50. Address all communications to the home office, 57 Sandford Ave., Plainfield, N. J.

ACIDITY IN THE ROCK GARDEN

E VERY now and then, on obtaining a new plant, the rock gardener will be confronted with the advice that "this species demands an acid soil." Since most of our horticultural practices tend toward neutralizing the acidity of soils, it is appropriate to consider how the needs of such specialized plants are to be satisfied.

In regions of humid climates, the reaction of many soils is best characterized as "circumneutral": they may be faintly acid or faintly alkaline, but from the plant's standpoint are essentially neutral. The bases which make them so-the most important of which are lime and potash-come in part from rock-making minerals. Such rocks as limestone, marble, and tufa (and, it may be noted, portland cement) are the most effective in this respect, but trap and other basic igneous rocks, as well as various types of shale, schist, etc., often vield considerable amounts of bases. In addition, the decomposition of organic matter liberates an abundance of bases which had accumulated in the living cells. Popular opinion to the contrary notwithstanding, commercial humus, compost, and leafmold are not in general acid in character, but are found by chemical tests to be circumneutral. Plants which experience has indicated to prefer circumneutral soils, as for example Aubrietas, Primulas, and Saxifragas, will thrive best if their roots have access to fragments of the rocks or masses of the organic materials enumerated.

When rain water extracts the bases from surficial rocks or humus, and in the process of percolation downward carries them away, the residue tends to become acid in reaction. Considerable acidity also develops in the incompletely decomposed organic debris known collectively as peat; this may be bog peat derived from sphagnum moss or sedges, upland peat made up of oak leaves or coniferous needles, or alpine peat formed by lichens and lesser mosses (likewise, to refer again to man-made products, old sawdust or tanbark). To favor the growth of most members of the Heath family and of individual representatives of other families observed to prefer acid soil, locate them in such positions in the rock garden that thorough leaching by the rain is assured, and furnish their root systems with an ample supply of some type of peat.

As yet the soil reaction preferences of only a limited number of plants have been worked out; lists of these will be found, under the heading "Soils," in Bailey's Hortus. Some day, perhaps, the American Rock Garden Society might undertake to compile more extensive lists on the basis of experience and observations of its members.

Summarizing the points above made, it may be stated that "lime-loving" or circumneutral soil plants are favored by limestone and leafmold, and those of acid preference by percolating water and peat.—E.T.W.



BY WALTER BEEBE WILDER

Scotch Broom, Cytisus scoparius, is a mass of bright yellow bloom the end of May.

BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

VOL. 3

July-August, 1945

No. 4

LOW SHRUBS FOR A DRY SUNNY EXPOSURE

HELEN M. Fox, Peekskill, New York

Our carden is in a part of Westchester County where granite crops up here and there, on hillsides or in places where it would be usual to have lawns. The stone is grey and sometimes tinged a lavender rose. At first the rocks were hidden with shrubbery, but gradually the growth has been removed and the rocks exposed. The deepest cracks were filled with humus which was also scattered over hollows thickly enough for plants to root and grow but not enough to hide much of the stones. It has taken many years to find plants suited to these sunbaked dry places. By now, age and experience have overcome impetuosity, as well as the desire of growing plants enticingly beautiful in other people's gardens. Two parts of the place now present what might be called satisfactory effects,—at least they did last year. One of these slopes southward and is green all the year around with Helianthemums, heathers and several varieties of creeping junipers. The other, facing west, is the subject of these notes.

This westward sloping garden is surrounded by flowering shrubs, crabapples, lilacs, pink Deutzias, Kerrias, Spiraeas, Buddleias, and so on, all of them so situated as not to cast shade on the rocks. The greater part of the slope has been planted with Iris, dwarfs at the base edging on to the lawn, those of medium height further up, and tall ones at the top and back; and they do wonderfully well. Though creeping Phloxes, carnations and *Saponaria ocymoides* were interplanted, yet something was wrong about the effect; it was too pointed and stiff, especially after the iris were over, for the foliage of these reminded one of an army, with bayonets fixed, marching down the hill. Gradually, and at strategic points, dwarf shrubs have been planted among the Iris, with most attractive results. Among the failures were the dwarf Rhododendrons, which had to be moved into a shadier and moister place; and the dwarf willows, all of which died except *Salix purpurea nana*, that grew too tall. Dwarf roses developed tall offspring from self-sown plants and became a nuisance.

Among the deciduous plants that have been a success is the charming little *Spiraea bullata*, not over a foot high with puckered leaves and flowers in deep rose-colored corymbs. The whole plant looks like a miniature of a larger shrub, a character dear to the heart of rock gardeners.

Potentillas have been highly successful. Only the shrubby members have been kept, for the others, though many of them are lovely, are often recumbent and take up too much space. Many forms of *Potentilla fruticosa* are charming such as var. *purdomii*, a shrubby plant 18 inches high with twigs curving away from the main stem, five-parted leaves with pale green, silky down on their under surfaces, and flowers up to an inch across, of a bright yellow with a slight green cast,—"greenish yellow" in Ridgway.

51

P. fruticosa mandshurica has yellow flowers and is attractive. Another is, I think, var. *dahurica*; my plant is grafted in the stock of something else, and has not done too well, nor has it been possible to root any cuttings. However, it has survived many years, and is attractive with its smooth leaves and tiny flowers like miniature single roses.

For me, Genistas and Cytisus seem to be short lived, so I collect the seeds to keep up the supply, for they are charming. Some of them selfsow, but on account of the long tap roots, transplanting must be done early in their lives. They do so well in the rocks I have planted Lilium amabile, L. pumilum and L. concolor to keep them company after the Iris are over. The Cytisus are softly hairy, have daintily shaped, trifoliate leaves and pulse-shaped flowers. Cytisus supinus, in spite of its name, is erect, with leaves thickly borne on rounded, green, hairy branches bearing the "strontian yellow" flowers in terminal clusters encircled by leaves, as in oldfashioned bouquets. Prostrate and small, not over a foot across, and lovely is Cytisus kewensis. The grey-green leaves, 3/8 inch in length, are covered with thread-like down, like spider's webs woven over the surfaces; the stems, too, are downy while the cream colored flowers, $\frac{1}{2}$ inch long, either singly or two together, smell of melilot or very sweet white clover. Bicolors and color forms other than white or yellow are not happy in the garden, and all have died. Not fragrant or showy is Cytisus albus, but pleasing is the soft billowy effect of its hairy green leaves and short stalked white, pale green tinted corolla, growing out of yellow-green calyces; this, too, has not been long lived for me. It is without scent. Hardiest of all is the Scotch Broom, Cytisus scoparius, a mass of bright yellow-"lemon chrome"-bloom the end of May. The branches sway easily at the slightest breeze, while each pointed, wide-shouldered leaflet forms a horseshoe arch. The pulse-like flowers growing along leafy stems are $\frac{1}{2}$ inch long and ⁵/₈ inch across, have a yellow-green calyx and smell a bit like vegetable peas. Our plants have to be powdered with a stomach poison, the rabbits are so fond of them.

In early June Genista tinctoria, with the intriguing popular name of Dyers-Greenweed, is a shining clump of bright yellow. It grows three feet high and becomes quite wide but does not live more than five years for me. It has become naturalized around Thomas Jefferson's place, Monticello, and grows all over his hill. It is as good looking in winter as in summer with its broom-like green branches. A low fluffy shrub is Genista germanica with large yellow blossoms on long wands in late May. A sweet musty fragrance comes from the flowers. Ten inches high and 18 inches across is Genista pilosa, low spreading and graceful, blooming early in May. The color of the flowers is between "empire" and "lemon" and they have no scent. This plant is quite long lived and seems to thicken and spread with age.

Another group of low shrubs are the Hypericums. They had perhaps better be called shrubby perennials, for the tall ones die back almost to the ground in winter. The prettiest I have had is *Hypericum moserianum*, beginning to bloom in July, when it becomes a mass of yellow, and from then on scatteringly into September. It is said not to come true from seed but can be increased readily from cuttings. The plant is said to be a hybrid between *H. patulum* and *H. calycinum*, and grows about two feet high. The brown branches bear opposite pairs of green, leathery leaves the same size, about 2 inches long, all along the stem. The flowers, borne in scant cymes, have each stalk subtended by two tiny leafy bracts, and have five petals of a wavy texture, nicked at one side of the centre and "wax yellow." They are so flat, when open, they disclose the five styles united below into a vase-shaped ovary of a paler yellow than the petals and surrounded by innumerable stamens in a wavy line like a ruffle, with yellow filaments and orange anthers. The last is the distinguishing character of this plant. One of its parents, *Hypericum patulum*, has slightly smaller flowers and leaves and is distinguished by red tinting on the leaflets subtending the flowers as also the stalks. Here the blossoms are greenish yellow, between "primuline" and "wax yellow." The stamens form a ruffle, too, but not wavy or orange.

Two shrubs that have done particularly well are *Indigofera kirilowii* and its close relative *I. incarnata alba*, both members of the Leguminosae, having pinnate leaves and racemes of pulse shaped flowers. *I. kirilowii* grows three feet high, has numerous racemes of quite large, roseate flowers of a lovely color and blooms from the end of May on for the ten day period usual for most shrubs. *I. incarnata alba* is not over 18 inches to 2 feet high, with leaves grey looking from their hairiness, and racemes of white flowers; and is graceful as well as hardy. It sends up numerous suckers.

The plants described thus far are all deciduous, but there are many attractive evergreens, too.

One summer's day I saw Helianthemum nummularium, in fine clumps, at the Arnold Arboretum. It is a plant abounding along the French Riviera and this is the only species hardy in the north. Fortunately it comes with white, pale yellow, deep orange and salmon pink flowers. The plants can be readily raised from seeds and increased by cuttings, and revel in sun and dryness. The evergreen leaves are reminiscent of rosemary, with their prominent central vein, reflexed margins, long and narrow shape, rounded at the tip and squarish at the base. The flowers open only in the mornings and on sunny days, in late May and early June.

Other evergreen shrubs are the Ericas and Callunas. Last year's open winter was hard on them, helped along in my garden, by their not being mulched, for it is said they require protection against spring sun, easily given by a covering of straw. Ericas, I find, do not like crowding. Both have been increased by cuttings, Callunas also by divisions. They bloom at Christmas, when they are exceedingly welcome, and again in midsummer.

Also with evergreen foliage are some of the dwarf barberries and Mahonias. The latter are particularly happy in this dry place.

Thus, in a seemingly difficult situation, it is possible to have many lovely plants.

HAPPY VALLEY

I was indeed "Happy Valley" for me—for from that visit came all the work, joy, and inspiration of my own Rock Garden. Twenty years ago, staying in Llandudno, Wales, we found "Happy Valley"—at the foot of a hill, or small mountain. Trees and rocks were in just the right places, and wild flowers had found their natural hiding places everywhere—I shall never forget the Aubrietas, in all the glory of their beautiful colors,— Dianthus, Lithôspermum, Primula, Saxifrage and many sorts of Sedum and Sempervivum. Various Campanulas, also Convolvulus cneorum and Mauritanicus, flourished in masses, these last being especially difficult for me. Many others, too numerous to mention, made a bit of Paradise and I often wonder if "Happy Valley" is still giving pleasure to people in that devastated land—SARAH A. HODSON, Greenwich, Conn.

A ROCK GARDEN TRADESCANTIA

MRS. H. P. MAGERS, Mountain Home, Arkansas

A MONG all families, no matter how black, there is usually one white sheep. The genus *Tradescantia* is no exception, for, while the very name calls to mind its representative in so many gardens,—lank, weedy plants with fleeting flowers, scarcely worth a glance, there is still one lovely "white sheep." This is a true rock plant, both in size and habits, native to the rocky bluffs along the Smoky River in central Kansas; it has been identified as *T. brevicaulis*. In its native soil, plentifully mixed with sandstone, it is a tiny thing; its broad, hairy, grey-green blades only two or three inches long at most. The big, bright rose flowers, with the petals opened flat to show the heart of golden stamens, crowd upon one another, and often rest directly upon the ground. The petals look as though cut from glistening silk, with a sheen few flowers can equal. To come unexpectedly upon a fine, mature plant of this *Tradescantia*, growing against the side of a rock with its glistening rosy blooms covering a space the size of a saucer, is a treat.

To anyone who loves rose flowers as I do there can be no hesitancy about their "place in the sun." And that is where the present species must be located,—in the fullest possible sun with perfect drainage, also the leanest kind of soil. They respond all too eagerly to rich garden soil, growing then ten to twelve inches tall with floppy blades and flower stems, and so losing much of their charm, though still giving prodigally of their bright blooms. In my rock garden they are planted about six inches apart each way, and last summer their little plateau was a rosy mound for weeks. There seems no limit to the number of buds a plant will produce, though, like the others of its tribe a flower has only one day to live. There is no faintest tint of lavender or purple in this rose *Tradescantia*, but one finds a good clear shade, never at all muddy or blurred, of both among seedlings now and then.

Once we found a white one that was as perfect a rock plant as the rose, —a gorgeous, heavy-petaled, pure white. It was a beauty, but for some reason it did not appear the next season, and in spite of repeated search another was never found. The plant dies down after flowering, but with the earliest fall rains the tips of its stiff, grey-green blades come pushing through and stand so all winter, requiring no covering or protection. They simply do not like coddling of any sort. They are most satisfactory to transplant; ours have always been collected in full bloom, and with the one exception have never failed to live.

The prairie has many extremely worth while flowers to offer both the garden and rock garden, but I know of no better one than this very lovely rose *Tradescantia*.

There are several species of Tradescantia suitable for rock garden culture, and we will appreciate the receipt of notes as to the experiences which our members have had with them. One beautiful red flowered form distributed by Mr. Barr has unfortunately not behaved well in the east, spreading unduly by rootstocks; but there are others which stay put.— E.T.W.



The DREAM of years by the members and officers of the A.R.G.S. was finally made a reality through the splendid efforts of a very capable and hard working committee; the unusually early spring throughout the east fortunately did not have much, if any, adverse effect on the exhibit. There still was a fine array of blooming plants and the exhibiters, particularly of the miniature rock gardens, did not lack for color. Comments from many authorities lauded this Show as one of the finest ever displayed in the east. The exhibits included some of the choicest collections of plants particularly the many specimen shrubs and conifers which were a special feature.

The exhibits that received the keenest attention were the very skillfully constructed miniature rock gardens. These were set on tables to cover an area of three feet by five feet and were particularly enjoyed because the fine detail could be so conveniently discerned. The first prize in this class was won by Zenon Schreiber, Paramus, New Jersey. This garden, in addition, was awarded the gold medal certificate "for the best exhibit in the Show" by The Horticultural Society of New York. This very ably designed garden duplicated a limestone rock outcrop or ledge at the edge of a woodland, all the plant material being in perfect perspective. The combination of lichen and moss covered stone with effective plant arrangement resulted in an extremely harmonious and beautiful garden. The upper crevices were planted with mountain pine, and birch was used as the woods background. Some of the other plant material included Cypripedium parviflorum, Woodsia obtusa, Asplenium platyneuron, Mitchella repens, Gaultheria procumbens, Vaccinium Vitisidaea, Antennaria neodioica, Androsace sarmentosa, Sempervirum arachnoideum, Erica carnea var. King George, Iberis saxatilis, Athyrium Goeringianum pictum, Sagine subulata, Hydrocotyle rotundifolia.

The second prize in this class was awarded to Marcel Le Piniec, Bergenfield, New Jersey. The excellent stone construction of this gar-



EXHIBIT OF ZENON SCHREIBER

den included a small pool in the foreground. The choice plant material so well arranged in this garden included Juniperus squamata prostrata, Calluna vulgaris rigida, Globularia repens, Lithospermum diffusum var. Grace Ward, Androsace sarmentosa var. Chumbyi, Thalictrum kiusianum, Vaccinium Vitis-idaea minus, Saxifraga virginiensis, Houstonia serpyllifolia.

The third garden in this class was constructed by Harold Epstein and K. Domoto, Larchmont, New York, and was outstanding for its unusual and choice plant material which included Picea abies nana, Juniperus procumbens nana, Tofieldia fusca, Viola nana, Gaultheria nummulariodes, Viola pedata alba, Cyclamen repandum, Scutellaria indica japonica, Rhodohypoxis platypetala — a small African amaryllid with pure white flowers, and R. Baueri its counterpart with rose flowers, both not too hardy in the east. Also included was a plant of Tsuga canadensis minuta, the smallest and perhaps the slowest growing of the native hemlocks.



EXHIBIT OF HAROLD EPSTEIN



EXHIBIT OF MARCEL LE PINIEC

Another table trough of this same three by five feet size as exhibited by P. J. Van Melle of Poughkeepsie, New York was non-competitive and contained an elaborate array of many choice and difficult plants that had been grown on tufa stone. This display should undoubtedly inspire others to get started in this fascinating type of rock gardening. Included amongst the many plants on these stones were innumerable Saxifragas, both kabschias and encrusted varieties, Globularia repens, Petrophytum caespitosum. One of the stones exhibited was from the famous Clarence Lown garden in Poughkeepsie that had been originally planted with some of the smaller Saxifragas about twenty-five years ago.

The first prize in the class for specimen plants in pots or trough was won by the New York Botanical Garden and included fine blooming plants of Valeriana supina, Lewisia columbiana rosea, Cypripedium candidum, Chrysanthemum Catananche, Chinographis japonica, Dianthus strictus, Scutellaria orientalis var. pinnatifida.



EXHIBIT OF PETER J. VAN MELLE ALL PHOTOS BY BOUTRELLE

The second prize in this class was awarded to Marcel Le Piniec, Bergenfield, New Jersey who displayed a fine array of plants some of which were *Iris gracilipes alba*, *Arenaria lithophila*, *Loiseleuria procumbens*, *Calochortus elegans*, *Silene* "virsylvia" with huge deep pink flowers and *Phlox divaricata* var. *Chattahoochee* with a bright red eye in the blue flower. The latter two are plants raised by Mrs. J. N. Henry.

Some of the more distant exhibitors who cooperated were the following.

Saxton and Wilson, Maplewood, Oregon (Successors to William Borsch and Son) displayed the following amongst a choice collection which included some excellent conifers and shrubs; Abies grandis nana, Juniperus communis saxatilis — Mt. Hood Form, J. c. Hornibrooki, Chamaecyparis obtusa juniperoides, C. o. nana, Gaylussacia brachycera, Genista pilosa, Dodecatheon patulum, Meconopsis Dhucojii — a yellow poppy that was in bud, but unfortunately did not open, Vancouveria parviflora, Polypodium Scouleri.

The display of Green Pastures Gardens, Seattle, Washington consisted of excellent specimens of *Shortia uniflora grandiflora*, *Schizocodon soldanelloides*, *S. s.* var. *ilicifolius*, *Cassiope lycopodioides*, *Vaccinium Vitis-idaea minus*. It is regretted that the magnificent floral display of this group preceded the Show by a few weeks although the very decorative foliage is always admired.

Significant in the exhibit of Carl Starker, Jennings Lodge, Oregon was the group of choice dwarf heathers which included Calluna vulgaris Foxii nana, C. v. minima Smith's var., C. v. Mrs. R. H. Gray, C. v. nana compacta, Erica Tetralix mollis-alba, E. vagans nana, Spiraea Normanii, Epimedium grandiflorum niveum, E. g. violaceum, Bellis perennis Dresden China.

One of the finest collections of shrubs was that of Kingsville Nurseries, Inc., Kingsville, Maryland. The gem amongst all was a fifteen year old plant of the very hardy *Buxus microphylla compacta* which was about fifteen inches in diameter and ten inches high. This plant was chosen as the outstanding woody plant of the Show. Other plants included were *Tsuga canadensis minima*, Jasminum Parkeri, Pinus Strobus nana var. Joe Gable, Picea Abies Ohlandorfi, P. a. nidiformis, Ilex crenata microphylla var. Kingsville, ville.

Another dwarf collection of conifers was submitted by the Boyce Thompson Institute, Yonkers, New York and included several piceas, chamaecyparis, and junipers.

The conifers displayed by the D. Hill Nursery Company, Dundee, Illinois, were Juniperus Sabina horizontalis Russian type, J. procumbens and J. p. nana, the last being one of the finest of the Junipers for the rock garden.

Another unusual conifer displayed by Gardenside Nurseries, Inc., Shelbourne, Vermont was a young specimen of *Abies balsamea hudsonica*.

The very interesting and unusual group of shrubs sent by Eastern Nurseries consisted of Tsuga canadensis Bradleyi, T. c. Dawsoniana, T. c. Hussii, Corema Conradii.

Claude A. Barr of Smithwick, South Dakota exhibited a large collection of native plants from the Bad Lands of South Dakota. They included *Townsendia exscapa*, Lithofragma parviflora, Penstemon nitidus, Oxytropis sericea, Phlox scleranthifolia, P. alyssifolia, P. Hoodii var. elaborata, Mertensia lanceolata.

Another display of native plants from the east as well as middlewest was exhibited by Paramount Gardens, Plainfield, New Jersey. They included Douglasia montana, Actinea simplex, Astragalus tridactylicus, Senecio canus, Ranunculus montanus, Corema Conradii.

Specimen plants exhibited by Harold Epstein, Larchmont, New York included Cryptomeria japonica var. Vilmoriniana, Chamaecyparis obtusa caespitosa, C. pisifera squarrosa pygmaea, Bellis perennis Dresden China, Iris gracilipes.

The gardens of Miss Evelyn Collins Hill of Lynnhaven, Virginia displayed a variety of plants amongst which were Myosotis alpestris, Polystichum acrostichoides, Adiantum pedatum, Santolina chamaecyparissus, Iberis sempervirens nana.

Carroll Gardens, Westminster, Maryland, displayed a few dozen of the ever popular Erodium chamaedryoides roseum and The Conrad-Pyle Company, West Grove, Pennsylvania had a mass planting of their tiny Rose Pixie.

There was but one annual displayed and that was *Collinsia verna* (Blue-eyed Mary) which was grown by Dr. Edgar T. Wherry, Philadelphia, Pennsylvania. This native of the east and middlewest with its white and blue flowers was completely described in a past issue of the "Bulletin."

Through the cooperation of the Eastman Kodak Company, illuminated cabinets were displayed which contained a few groups of kodachrome slides. One collection was on Alaskan wild flowers which were shown by Mrs. Sarah V. Coombs of Scarsdale, New York and which were photographed by Miss Maxine Williams. Another group of slides were scenes from the Brooklyn Botanic Garden and were exhibited by Montague Free. Other kodachromes exhibited were plants and scenes from the garden of Harold Epstein.

The huge success of this Show was indicated by many favorable expressions and an excellent attendance, with the result that an encore is practically demanded and plans are now being made for its continuance as an annual affair.

THE JEWEL-CASE GARDEN

P. J. VAN MELLE

Now THAT I cannot give all of my rock garden the time I used to give it, I continue to reap a comparatively large harvest of enjoyment from my small tufa garden. This consists of a number of large and small slabs of tufa plunged in an absorbent soil cushion, in a suitable exposure, and planted with the smallest and choicest of plants. It is amazing how much diversity of beauty may be contained in such a garden, and how well plants maintain themselves in it for years on end.

A successful tufa garden is not any matter of elaborate upkeep. But it wants to be made carefully, and it should be well located.

Some years ago I brought a supply of tufa rock from a gorge to the south of Ilion, in Herkimer County, N. Y., where it is found by way of a deposit left by highly calcareous spring water, trickling down the hillsides; — a natural kettle-stone that settles upon and about whatever gravel or vegetation lines the course of these trickles. Where it cakes over gravel, you get a heavy, hard, undesirable grade, but where it flows through vegetation it forms a light, porous, spongy slab, in which the vegetable matter soon decays. This, provided it is not too soft and crumbly—that is, not too "young"—makes an excellent grade for garden use. I bought my material not for weathered and picturesque looks, but for its porous quality. Its acquisition was a matter of the best possible deal with the natives of those parts, who entertain more or less exalted ideas of its value.

Having brought the stuff home, I spread it out in a shady, dampish place, where it soon became covered with green mosses and algae. After a month or two, I began to get the slabs ready. The natural pockets in them were chipped out larger, and as many new ones drilled as I wished. Depending upon the hardness of the material, this was done with a tenpenny nail and hammer, or with a $\frac{1}{2}$ -inch stone- or star-drill and hammer. It is slow and vexatious work, for a number of the best slabs broke up in the process. The holes were made from 1 to 2 inches wide, and drilled almost, but not quite to the bottom surface of the slabs. Every hole was tested for drainage, by means of water poured into it. When the water drains off promptly, the hole is right for planting; if it doesn't, you must drill sideways in hope of striking a drainage vein. If this can not be done, then the hole must be marked as unsuitable for any choice plant.

Finally, in the planting, a gritty rock garden soil is used, and the method is simply that employed in potting. I use plants whose roots will fill the hole snugly with a little ramming down. I prefer to do the planting in early September, but have done it later, and in the spring. Better not during hot weather.

I placed my tufa garden in a certain, limited area where Saxifragas appeared to thrive the best; that is, in a place open to, and sloping toward the North; shaded from noon on by tall growth to the South. This area is now crammed-full of tufa. All attempts to place some of the rocks in more open, sunny and drier places have failed. Not only do the plants pass out, but the rocks themselves lose their green covering and become a harsh gray—the color of bleached bones.

In the first spring following planting, vacancies will occur in the pockets. Insofar as plants were used which will ordinarily thrive in one's locality, these losses are almost invariably due to drainage trouble. Unless the pockets are cleaned out, and drainage re-established, repeat plantings

THE IEWEL-CASE GARDEN

P. I. VAN MELLE

Now THAT I cannot give all of my rock garden the time I used to give it, I continue to reap a comparatively large harvest of enjoyment from my small tufa garden. This consists of a number of large and small slabs of tufa plunged in an absorbent soil cushion, in a suitable exposure, and planted with the smallest and choicest of plants. It is amazing how much diversity of beauty may be contained in such a garden, and how well plants maintain themselves in it for years on end.

A successful tufa garden is not any matter of elaborate upkeep. But it wants to be made carefully, and it should be well located.

Some years ago I brought a supply of tufa rock from a gorge to the south of Ilion, in Herkimer County, N. Y., where it is found by way of a deposit left by highly calcareous spring water, trickling down the hillsides: — a natural kettle-stone that settles upon and about whatever gravel or vegetation lines the course of these trickles. Where it cakes over gravel, you get a heavy, hard, undesirable grade, but where it flows through vegetation it forms a light, porous, spongy slab, in which the vegetable matter soon decays. This, provided it is not too soft and crumbly-that is, not too "young"-makes an excellent grade for garden use. I bought my material not for weathered and picturesque looks, but for its porous quality. Its acquisition was a matter of the best possible deal with the natives of those parts, who entertain more or less exalted ideas of its value.

Having brought the stuff home, I spread it out in a shady, dampish place, where it soon became covered with green mosses and algae. After a month or two. I began to get the slabs ready. The natural pockets in them were chipped out larger, and as many new ones drilled as I wished. Depending upon the hardness of the material, this was done with a tenpenny nail and hammer, or with a 1/2-inch stone- or star-drill and hammer. It is slow and vexatious work, for a number of the best slabs broke up in the process. The holes were made from 1 to 2 inches wide, and drilled almost, but not quite to the bottom surface of the slabs. Every hole was tested for drainage, by means of water poured into it. When the water drains off promptly, the hole is right for planting; if it doesn't, you must drill sideways in hope of striking a drainage vein. If this can not be done, then the hole must be marked as unsuitable for any choice plant.

Finally, in the planting, a gritty rock garden soil is used, and the method is simply that employed in potting. I use plants whose roots will fill the hole snugly with a little ramming down. I prefer to do the planting in early September, but have done it later, and in the spring. Better not during hot weather.

I placed my tufa garden in a certain, limited area where Saxifragas appeared to thrive the best; that is, in a place open to, and sloping toward the North; shaded from noon on by tall growth to the South. This area is now crammed-full of tufa. All attempts to place some of the rocks in more open, sunny and drier places have failed. Not only do the plants pass out, but the rocks themselves lose their green covering and become a harsh grav—the color of bleached bones.

In the first spring following planting, vacancies will occur in the pockets. Insofar as plants were used which will ordinarily thrive in one's locality, these losses are almost invariably due to drainage trouble. Unless the pockets are cleaned out, and drainage re-established, repeat plantings

will fail as promptly as the original. It is my experience here that plants in tufa either do very well or not at all. It is a matter of yes or no; fortunately, mostly yes.

I try to—always mean to—cover newly planted slabs with hemlock boughs the first winter. But most of my tufa garden goes uncovered, most winters. Snow is, of course, the best cover. It seems to make the Kabschia Saxifragas flower abundantly; for they are never better than when the flower buds push up through the last of the melting snow.

What do I plant on my tufa slabs? Nothing but the smallest and choicest of my plants; mostly Saxifragas; not just any kind. None of the ordinary, dull forms of, for instance, *S. Aizoon*, but all those small, silvery-leaved and pretty-flowered forms which are eligible for the jewel-case. Kabschias of all kinds; preferably the tiny ones, like *S. Irvingii*, but also some of the larger ones. For, when restricted within a pocket, they will make very tidy hummocks.



BY P. J. VAN MELLE

The jewel-case garden when Saxifragas are in bloom

And, beside Saxifragas, such little things as Globularia repens (nana), G. incanescens, Asperula nitida, Draba bruniifolia, and even D. aizoides not because of its flowers, but rather, for the emerald-green stars of the self-sown youngsters which come up everywhere. Then, there are garnishings of tiny Sempervivums and Sedums, which must find a foothold where they may; and occasional chance seedlings of other plants, like Pinks, which often manage to establish themselves comfortably and remain abnormally small.

A tufa garden, well located, and placed upon an absorbent soil cushion which can, in times of need, be soaked with the hose, requires a minimum of upkeep. No cultivation, and practically no weeding. A light topdressing of a very fine, very gritty mixture of the very finest gravel and some leafmold—brushed into the plants toward autumn, may be desir-

60

will fail as promptly as the original. It is my experience here that plants in tufa either do very well or not at all. It is a matter of yes or no; fortunately, mostly yes.

I try to—always mean to—cover newly planted slabs with hemlock boughs the first winter. But most of my tufa garden goes uncovered, most winters. Snow is, of course, the best cover. It seems to make the Kabschia Saxifragas flower abundantly; for they are never better than when the flower buds push up through the last of the melting snow.

What do I plant on my tufa slabs? Nothing but the smallest and choicest of my plants; mostly Saxifragas; not just any kind. None of the ordinary, dull forms of, for instance, S. Aizoon, but all those small, silveryleaved and pretty-flowered forms which are eligible for the jewel-case. Kabschias of all kinds; preferably the tiny ones, like S. Irvingii, but also some of the larger ones. For, when restricted within a pocket, they will make very tidy hummocks.



BY P. J. VAN MELLE

The jewel-case garden when Saxifragas are in bloom

And, beside Saxifragas, such little things as Globularia repens (nana), G. incanescens, Asperula nitida, Draba bruniifolia, and even D. aizoides not because of its flowers, but rather, for the emerald-green stars of the self-sown youngsters which come up everywhere. Then, there are garnishings of tiny Sempervivums and Sedums, which must find a foothold where they may; and occasional chance seedlings of other plants, like Pinks, which often manage to establish themselves comfortably and remain abnormally small.

A tufa garden, well located, and placed upon an absorbent soil cushion which can, in times of need, be soaked with the hose, requires a minimum of upkeep. No cultivation, and practically no weeding. A light topdressing of a very fine, very gritty mixture of the very finest gravel and some leafmold—brushed into the plants toward autumn, may be desir-

60

able. Once established, plants will maintain themselves in fine condition almost indefinitely.

A garden of this sort, even it no larger than 6 by 6 feet, may be made to contain an amazing beauty of flower and of growth-patterns. It becomes an inlay of all manner of precious little things—a collection of miniatures. I, for one ,like this sort of thing, and I think that it has much to commend itself to people with limited space and time but with an eye for this kind of decorative detail.

Let's not try comparisons between this and other kinds of rock- or woodland gardens. Each has its own charms; and fortunate is he who can have the one and the other. By way of a characterization of the tufa garden, I would call it the *bijouterie*,—the jewel-case garden.

SEED SOWING MEDIA

E VERYONE has his pet soil mixture for seed sowing, but very few media are ideal for all the different seeds we wish to grow. A mixture lean enough to discourage damping off may be difficult to keep from drying out too much, and no seeds will germinate without moisture.

After trying various sterile media, such as sifted ashes, baked soil, and mica, I finally discovered a seeding substance easy to work and maintain, free from damping off, practically weed free, and apparently congenial to many various types of seed. This is ground-up sphagnum moss, not the commercial peat-moss, but the green, growing moss of swamps and bogs.

This can be used as a two to three inch layer on top of a soil mixture, or it can be used for the whole content of pot, pan, or flat. The seeds are merely scattered directly on the surface. A shade glass over the container is beneficial until germination takes place. Practically no watering is necessary as the sphagnum is like a sponge and holds a quantity of moisture without being soggy. The surface must not be permitted to dry out, however, as it tends to form when dried an impervious crust.

Seedlings can be grown much closer together in this medium because there is no danger of damping off. The seedlings may be left in the sphagnum for a long period of time without damage, not making much growth unless chemically fed, but living.

Transplanting is easy as a good root system is encouraged and the rooting medium is so light that it comes away without much breakage of the fine rootlets.

Sphagnum is an ideal substance in which to grow members of the *Ericaceae*, most of which have fine seeds and like the acidity. However, plants which are normally lime lovers do not seem to resent the sphagnum. In fact, I have a pan of *Saxifraga aizoon* seedlings which have been growing in sphagnum for six months, and though they have made little growth are perfectly happy. Some already transplanted from this crowded pan made rapid growth immediately after being set out.

Sphagnum may not be the final answer to seed-sowing problems, but it does for many types of seed take away some of the headaches. For tree and shrub seeds it is especially recommended.—H. LINCOLN FOSTER, Norfolk, Conn. able. Once established, plants will maintain themselves in fine condition almost indefinitely.

A garden of this sort, even it no larger than 6 by 6 feet, may be made to contain an amazing beauty of flower and of growth-patterns. It becomes an inlay of all manner of precious little things—a collection of miniatures. I, for one ,like this sort of thing, and I think that it has much to commend itself to people with limited space and time but with an eye for this kind of decorative detail.

Let's not try comparisons between this and other kinds of rock- or woodland gardens. Each has its own charms; and fortunate is he who can have the one and the other. By way of a characterization of the tufa garden, I would call it the *bijouterie*,—the jewel-case garden.

SEED SOWING MEDIA

E VERYONE has his pet soil mixture for seed sowing, but very few media are ideal for all the different seeds we wish to grow. A mixture lean enough to discourage damping off may be difficult to keep from drying out too much, and no seeds will germinate without moisture.

After trying various sterile media, such as sifted ashes, baked soil, and mica, I finally discovered a seeding substance easy to work and maintain, free from damping off, practically weed free, and apparently congenial to many various types of seed. This is ground-up sphagnum moss, not the commercial peat-moss, but the green, growing moss of swamps and bogs.

This can be used as a two to three inch layer on top of a soil mixture, or it can be used for the whole content of pot, pan, or flat. The seeds are merely scattered directly on the surface. A shade glass over the container is beneficial until germination takes place. Practically no watering is necessary as the sphagnum is like a sponge and holds a quantity of moisture without being soggy. The surface must not be permitted to dry out, however, as it tends to form when dried an impervious crust.

Seedlings can be grown much closer together in this medium because there is no danger of damping off. The seedlings may be left in the sphagnum for a long period of time without damage, not making much growth unless chemically fed, but living.

Transplanting is easy as a good root system is encouraged and the rooting medium is so light that it comes away without much breakage of the fine rootlets.

Sphagnum is an ideal substance in which to grow members of the *Ericaceae*, most of which have fine seeds and like the acidity. However, plants which are normally lime lovers do not seem to resent the sphagnum. In fact, I have a pan of *Saxifraga aizoon* seedlings which have been growing in sphagnum for six months, and though they have made little growth are perfectly happy. Some already transplanted from this crowded pan made rapid growth immediately after being set out.

Sphagnum may not be the final answer to seed-sowing problems, but it does for many types of seed take away some of the headaches. For tree and shrub seeds it is especially recommended.—H. LINCOLN FOSTER, Norfolk, Conn.



VIOLET OXALIS

W HEN a rock gardener comes upon a colony of this showy native plant in full bloom, which may happen almost anywhere in the eastern half of the United States, and even in the Rocky Mountain foothills, he is likely to visualize a spot amid the rocks where it would just fit, and proceed to dig a few bulbs to introduce it there. Some time ago Mrs. Frye sent in some notes on rock garden Oxalises, and her accounts of desirable ones were published in the Bulletin, Vol. 2, No. 5. But her reference to the present species was held over, for it tells so well what can be expected:

"In the Colorado Rockies I collected at the risk of my neck and back a few bulbs of *Oxalis violacea*—a bland little dear. I took the best of care of it for the first few years. Since I have exercised much more care, and an infinite amount of time, to rid the garden of this lovely little invader enough is enough certainly."

The bulbs produce numerous slender runners from the base, each of which makes a new bulb, and so on and on and on. They had better be left where Nature located them.—E.T.W.





VIOLET OXALIS

W HEN a rock gardener comes upon a colony of this showy native plant in full bloom, which may happen almost anywhere in the eastern half of the United States, and even in the Rocky Mountain foothills, he is likely to visualize a spot amid the rocks where it would just fit, and proceed to dig a few bulbs to introduce it there. Some time ago Mrs. Frye sent in some notes on rock garden Oxalises, and her accounts of desirable ones were published in the Bulletin, Vol. 2, No. 5. But her reference to the present species was held over, for it tells so well what can be expected:

"In the Colorado Rockies I collected at the risk of my neck and back a few bulbs of *Oxalis violacea*—a bland little dear. I took the best of care of it for the first few years. Since I have exercised much more care, and an infinite amount of time, to rid the garden of this lovely little invader enough is enough certainly."

The bulbs produce numerous slender runners from the base, each of which makes a new bulb, and so on and on and on. They had better be left where Nature located them.—E.T.W.





Ques.—Has any member succeeded in wintering successfully outdoors in the latitude of New England for a number of years Lithospermum prostratum Heavenly Blue or Lithospermum Grace Ward? L.A.T., Boston.

Ans.—It would be interesting if members would write in their experiences with these lovely plants. Lithospermum prostratum Heavenly Blue came through two winters at "Cronamere." They were rather mild winters and a good covering of salt hay was placed over the plants.

When I visited Kew Gardens, England, in May, 1936, Lithospermum prostratum and Lithospermum Grace Ward were being transplanted from pots into the rock garden. They had been carried over the winter in the greenhouse or covered frames.

Ques.—Is it necessary to cover seed flats with glass? H.H.M., Kentucky.

Ans.—Covering seed flats with glass will conserve moisture and keep an even temperature. However, seeds of alpine plants give less trouble when planted in clay seed pans rather than wooden flats. The seed pans may be watered from the bottom; that is, place the pans in water until moisture appears on the surface of the soil. Overhead sprinkling of flats causes the soil to pack down and is one of the reason that damping off occurs.

Ques.-Do annual plants need constant fertilization? L.O.N., Ohio.

Ans.—Annuals should be planted in well fertilized soil and should be given more fertilizer just before the blooming period starts.

Ques.-How often should the rock garden be renovated? L.L.O., Pa.

- Ans.—All rock gardens should be renovated twice a year, in the early spring and again in late summer or early autumn. All dead foliage and leaves should be removed, many invasive plants cut back, and a careful survey made in order to rescue small plants which have been overrun by their neighbors. Plants which have not flourished in sunny situations during the heat of the summer should be removed to partial shade; seedlings rescued and transplanted. Examine the soil carefully and where it has been washed away by rains give a good top dressing.
- Ques.—Is it advisable to cut back many varieties of rock plants after blooming? B.O.R., Va.
- Ans.—Unless seed is desired it is advisable to cut off the faded blossoms of many plants in order to save the plant the strain of producing seed. This is particularly true of the Helianthemums and *Daphne cneorum* which as soon as the blooming period is passed should be cut back to within four or five inches of the crown of the plant in order to insure a full bushy growth the following year.

This Department is in charge of Mrs. C. I. De Bevoise, Greens Farms, Connecticut. Send her your questions.



Ques.—Has any member succeeded in wintering successfully outdoors in the latitude of New England for a number of years Lithospermum prostratum Heavenly Blue or Lithospermum Grace Ward? L.A.T., Boston.

Ans.—It would be interesting if members would write in their experiences with these lovely plants. Lithospermum prostratum Heavenly Blue came through two winters at "Cronamere." They were rather mild winters and a good covering of salt hay was placed over the plants.

When I visited Kew Gardens, England, in May, 1936, Lithospermum prostratum and Lithospermum Grace Ward were being transplanted from pots into the rock garden. They had been carried over the winter in the greenhouse or covered frames.

Ques.—Is it necessary to cover seed flats with glass? H.H.M., Kentucky.

Ans.—Covering seed flats with glass will conserve moisture and keep an even temperature. However, seeds of alpine plants give less trouble when planted in clay seed pans rather than wooden flats. The seed pans may be watered from the bottom; that is, place the pans in water until moisture appears on the surface of the soil. Overhead sprinkling of flats causes the soil to pack down and is one of the reason that damping off occurs.

Ques.-Do annual plants need constant fertilization? L.O.N., Ohio.

Ans.—Annuals should be planted in well fertilized soil and should be given more fertilizer just before the blooming period starts.

Ques.—How often should the rock garden be renovated? L.L.O., Pa.

- Ans.—All rock gardens should be renovated twice a year, in the early spring and again in late summer or early autumn. All dead foliage and leaves should be removed, many invasive plants cut back, and a careful survey made in order to rescue small plants which have been overrun by their neighbors. Plants which have not flourished in sunny situations during the heat of the summer should be removed to partial shade; seedlings rescued and transplanted. Examine the soil carefully and where it has been washed away by rains give a good top dressing.
- Ques.—Is it advisable to cut back many varieties of rock plants after blooming? B.O.R., Va.
- Ans.—Unless seed is desired it is advisable to cut off the faded blossoms of many plants in order to save the plant the strain of producing seed. This is particularly true of the Helianthemums and *Daphne cneorum* which as soon as the blooming period is passed should be cut back to within four or five inches of the crown of the plant in order to insure a full bushy growth the following year.

This Department is in charge of Mrs. C. I. De Bevoise, Greens Farms, Connecticut. Send her *your* questions.



CORRESPONDENCE CIRCLES

An opportunity is offered to the members of the American Rock Garden Society to exchange information, experiences and plant material through the medium of a "Correspondence Circle" conducted along the lines of the many Round Robins which are operating so successfully all over the country. Mrs. Matilda A. Kovachoff, 4034 Highland, Kansas City 4, Missouri, has a wide experience in conducting these circles and has very generously consented to superintend such circles within the A.R.G.S.; for information concerning them you are cordially invited to contact Mrs. Kovachoff.

GROUP REPORTS

The cause and organization of the American Rock Garden Society is prospering in every section; the interest in our cult is manifest in every group and we now have the largest membership in our history; the activities of each group are of interest to every other group and we will be glad to publish accounts of your various group meetings if you will send them in.

In the Central Group, where a "Correspondence Circle" is already in action there is a lively interest in matters pertaining to rock gardening and many new members have been enrolled.

Although widely scattered, the Northwestern Group had an average attendance of fifteen during the past year; at a recent meeting the following officers were elected; Chairman, Carl S. English Jr.; Secretary-Treasurer, Dr. Curtis T. Williams; Program Chairman, Mrs. Burton J. Wheelon.

SEED EXCHANGE

The Seed Exchange has experienced a very successful year and we are looking for an increase in this department during the coming year; plan now to save your surplus seed and send them to Mrs. Hildegard Schneider, 1751 Seminole Ave., Bronx, N. Y.; seed of perennials which you may not need are always acceptable to someone else.

25 CLUB

This is a general reminder to the members of the "25 Club" that some of you have not yet sent in your contributions for the year; we always need articles and pictures for the Bulletin.



CORRESPONDENCE CIRCLES

An opportunity is offered to the members of the American Rock Garden Society to exchange information, experiences and plant material through the medium of a "Correspondence Circle" conducted along the lines of the many Round Robins which are operating so successfully all over the country. Mrs. Matilda A. Kovachoff, 4034 Highland, Kansas City 4, Missouri, has a wide experience in conducting these circles and has very generously consented to superintend such circles within the A.R.G.S.; for information concerning them you are cordially invited to contact Mrs. Kovachoff.

GROUP REPORTS

The cause and organization of the American Rock Garden Society is prospering in every section; the interest in our cult is manifest in every group and we now have the largest membership in our history; the activities of each group are of interest to every other group and we will be glad to publish accounts of your various group meetings if you will send them in.

In the Central Group, where a "Correspondence Circle" is already in action there is a lively interest in matters pertaining to rock gardening and many new members have been enrolled.

Although widely scattered, the Northwestern Group had an average attendance of fifteen during the past year; at a recent meeting the following officers were elected; Chairman, Carl S. English Jr.; Secretary-Treasurer, Dr. Curtis T. Williams; Program Chairman, Mrs. Burton J. Wheelon.

SEED EXCHANGE

The Seed Exchange has experienced a very successful year and we are looking for an increase in this department during the coming year; plan now to save your surplus seed and send them to Mrs. Hildegard Schneider, 1751 Seminole Ave., Bronx, N. Y.; seed of perennials which you may not need are always acceptable to someone else.

25 CLUB

This is a general reminder to the members of the "25 Club" that some of you have not yet sent in your contributions for the year; we always need articles and pictures for the Bulletin.

SPECIALISTS IN ALPINES AND ROCK GARDEN PERENNIALS

WILLIAM BORSCH & SON.

Maplewood, Oregon

GREEN PASTURE GARDENS 2215 East 46th Street Seattle 5, Wash.

> REX D. PEARCE Moorestown, New Jersey

PARAMOUNT GARDENS Plainfield, New Jersey

WAKE ROBIN FARM

James Loder Park Home, Pennsylvania

MAYFAIR NURSERIES MARCEL LEPINIEC Rock Garden Construction 93 Highland Ave. Bergenfield, N. J.

ZENON SCHREIBER Landscape Design 2100 East Ridgewood Ave. Paramus, N. J.

BIND YOUR BULLETINS -

CARROLL GARDENS

Westminster, Maryland

MITCHELL NURSERIES

Barre, Vermont

CARL STARKER GARDENS

Jennings Lodge, Oregon

UPTON GARDENS Colorado Springs Colorado

ISAAC LANGLEY WILLIAMS

Exeter, New Hampshire

CLAUDE A. BARR Prairie Gem Ranch Smithwick, S.D.

S A N D Y L O A M Garden Lilies North Springfield Vermont

Bulletins are punched for binding—simply tear off cover and insert; we will supply you with a black, imitation leather, stout binder that will accommodate two years Bulletins—at the end of each two year period we will furnish a complete index to fit the binder. Post paid \$1.00