



*Callirhoe
involucrata*

Laura Louise Foster

Bulletin of the
American
Rock Garden Society

Vol. 35

Spring, 1977

No. 2

The Bulletin

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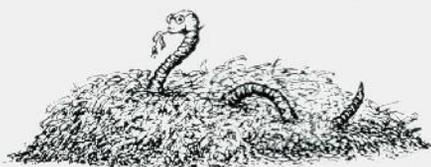
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THE COMPOST PILE

TURKEY 1977 — CHOICE ALPINES

*John Watson invites subscriptions
For collected seeds, etc.*

PRIMARY OBJECTIVES:

The cream of Turkish alpine. It is hoped to gather some 40-50 species of cushion, scree and other high alpine from approximately 30 genera. Some will be quite unfamiliar, but others such as *Linum aretioides*, *Alkanna incana*, *Lamium armenum* and *Tchahatchewia insatidea* may be commended by the mere mention of their names! *Asyneuma*, *Salvia*, *Dianthus*, *Omphalodes*, *Erysimum*, *Viola*, *Convolvulus* and *Campanula* are a few of the better-known genera.

SECONDARY OBJECTIVES:

It will unfortunately be rather on the late side for bulbs (besides which Afghanistan and Iran are undoubtedly proving to be more fruitful hunting grounds of late). But I do propose to make as good a collection of them as possible. I shall only collect second rank alpine, herbaceous, etc., if there is strong demand.

TIME AND PLACE:

Collecting will cover 3½-4 months (mid-May to mid-September) throughout mountainous Turkey. It is hoped to explore one or two localities

which may not have been investigated before. This may throw up something not "on the cards" as a bonus.

For a list of 75 "goodies" that will form the main "quarry", and other details, including the price of subscription, send to J. M. Watson, Mill Farmhouse, Whatlington, BATTLE, E. Sussex, TN33 0ND, England.

Since receipt of John Watson's exciting announcement there have been developments. It is now definite that our own Roy Davidson will accompany John as co-collector, thus giving the expedition an Anglo-American cast. The basic price of subscription will be \$75.00, unchanged from the days when costs were very much lower, but it is hoped that those who can will subscribe more, thus helping to fill the gap and to make the expedition possible.

John Watson is in the great tradition of Farrer, Forrest, Kingdon-Ward, et al, who have so enriched our gardens — and our lives. His calling demands enormous knowledge, botanical and horticultural, much energy and physical stamina, and sharp eyes. We could no more be John Watson than we could be Muhammad Ali. Within the range of the possible, however, I know no greater excitement for the gardener than, by taxing his skill to the utmost, to coax into growth seed from a collecting expedition, some of it, probably, from plants unknown to science, most from plants known but not yet horticulturally established.

Many of us, of course, cannot afford to subscribe to such an expedition, even though it is cheap enough at roughly \$1.00 per packet to get seeds of remarkable treasures obtainable no other way, with high adventure thrown in. Others can afford to subscribe, and would dearly love the plants, but may have doubts about their skill as propagators. The solution is for people to get together. The several chapters can buy shares, the seeds to be grown by those with a special skill, the plants to be shared by all. Or individuals can get together. The propagators and financial supporters are as important as the collector in helping new and beautiful plants to grace the world's gardens.

If our mail service runs true to form, you may not receive this issue of the Bulletin until after John and Roy have left for Turkey. But do not be deterred. Write John anyway, at the address given above. Mrs. Watson will cope.

FLOWER SHOWS

Flower shows have been slow to catch on in rock gardening circles in this country. This is a pity because a show is, as Horace would say, dulce et decorum, which can be mistranslated as delightful and educational. It is delightful to be able to show off one's own treasures and examine others'. It is educational as only autopsy can be to see with one's own eyes plants that have hitherto been only names to us.

The show at the study week-end in Albany, occurring at the end of January in this coldest of winters, was under severe handicaps. Nothing could be dug up. Even most alpine houses had a very dormant, frozen look. Flowering plants had to be forced, under lights or in greenhouses. Some exhibits had yet to reach their prime, others were past it. Yet even so there was a fine display that contributed greatly to the success of a memorable convention.

Fran Lubera, who was first show chairman for the very successful Connecticut shows, was in charge. There follows her report with some comments on the method of judging.

PLANT SHOWS AND JUDGING

Fran Lubera, East Hartford, Conn.

When the Connecticut Chapter decided to have a plant show at their monthly meetings, I was asked to serve as show chairman.

How to judge plants was a major consideration. We decided on a new method of judging, strictly American. It was felt that having each chapter member vote was not only a democratic procedure, but also a learning one, as we would learn to look at plants thoroughly and with a critical eye.

Exhibitors bringing in plants for the show are given an entry card for each plant brought in. The card is filled in by the exhibitor with the botanical name of the plant, the class entered, and the exhibitor's name, which is turned under when the plant is put on the bench in the proper class. After all entries are on the bench, each entry card is numbered by the show chairman. Members are then given a ballot with the classes listed and space provided opposite each class for the members to vote for the plants of their choice by number.

The votes are then counted by a committee. The highest number of votes in Class I gets first place, the second highest receives second place, and third place goes to the next. Each class is so counted.

At the Albany Study Weekend we thought it might be interesting to have a panel of judges judge the show and then compare their choices with those of the general membership. The selections of the judges and the membership showed a remarkable consistency and, except in class one, were almost identical.

The winners, by popular vote, were:

Class 1. Any rock garden plant in bloom. 1. *Anchusa caespitosa* (K. Grieshaber); 2. *Dianthus* sp. (M. Edgren); 3. *Crocus susianus* (F. Cabot).

Class 2. Silver Foliage. 1. *Helichrysum coralloides* (F. Cabot); 2. *Sedum spathulifolium* (G. Pollock); 3. *Sedum spathulifolium* (F. Cabot).

Class 3. Crassulaceae. 1. *Rosularia pallida* (J. Spingarn); 2. *Sedum multiceps* (H. Porter); 3. tie between *Sedum spathulifolium* 'Capa Blanca' (M. Walsh) and *Sedum anglicum* (A. Kistler).

Class 4. Saxifrage. 1. *S. x elisabethae* 'L. G. Godseff' (F. Cabot); 2. *S. griesbachii* (F. Cabot); 3. *S. x boydii* 'Hindhead Seedling' (H. L. Foster).

Class 5. Primulaceae. 1. *Soldanella alpina* (R. Beckwith); 2. *Dodecantheon* sp. (M. Edgren); 3. *Primula darialica* (M. Edgren).

Class 6. Cyclamen. 1. *C. coum* (K. Grieshaber); 2. *C. ibericum* (F. Cabot); 3. *C. coum alba* (H. Pfeifer).

Class 7. Cushion *Saxifraga burserana* 'Gloria' (F. Cabot); 2. *Raoulia lutescens* (H. Pfeifer); 3. *Raoulia australis* (J. Spingarn).

Class 8. Dwarf shrub. 1. *Calluna vulgaris* 'Dainty Bess' (A. Kistler); 2. *Polygala chamaebuxus purpurea* (H. Porter); 3. *Kalmiopsis leachiana* (G. Zimmerman).

Class 9. Dwarf conifer. 1. *Chamaecyparis ob.* 'Caespitosa' (J. Spingarn); 2. *Chamaecyparis ob.* 'Leprechaun' (H. L. Foster); 3. *Chamaecyparis ob.* 'Golf Ball' (F. Cabot).

Class 10. Container planted for overall effect. 1. Japanese Rock Garden (H. Epstein); 2. Planter (K. Grieshaber); 3. Redwood Planter (F. Cabot).

Bill Brown, the Chairman of the Long Island Chapter, has for some time been urging that the Bulletin print accounts of prize-winning plants. His services were, of course, enlisted. Herewith his first report.

SOME NOTES ON THE FIRST PLACE WINNERS

Anchusa caespitosa. This choice member of the boraginaceae inhabits the lofty summits of the Cretan mountains. Its blooming season extends from May to August in its native habitat. Mr. Grieshaber reports that the plant exhibited was propagated by Mr. Carl Gehenio of Pittsburgh, Pa. See Mr. Gehenio's account of his method on p. 63 below.

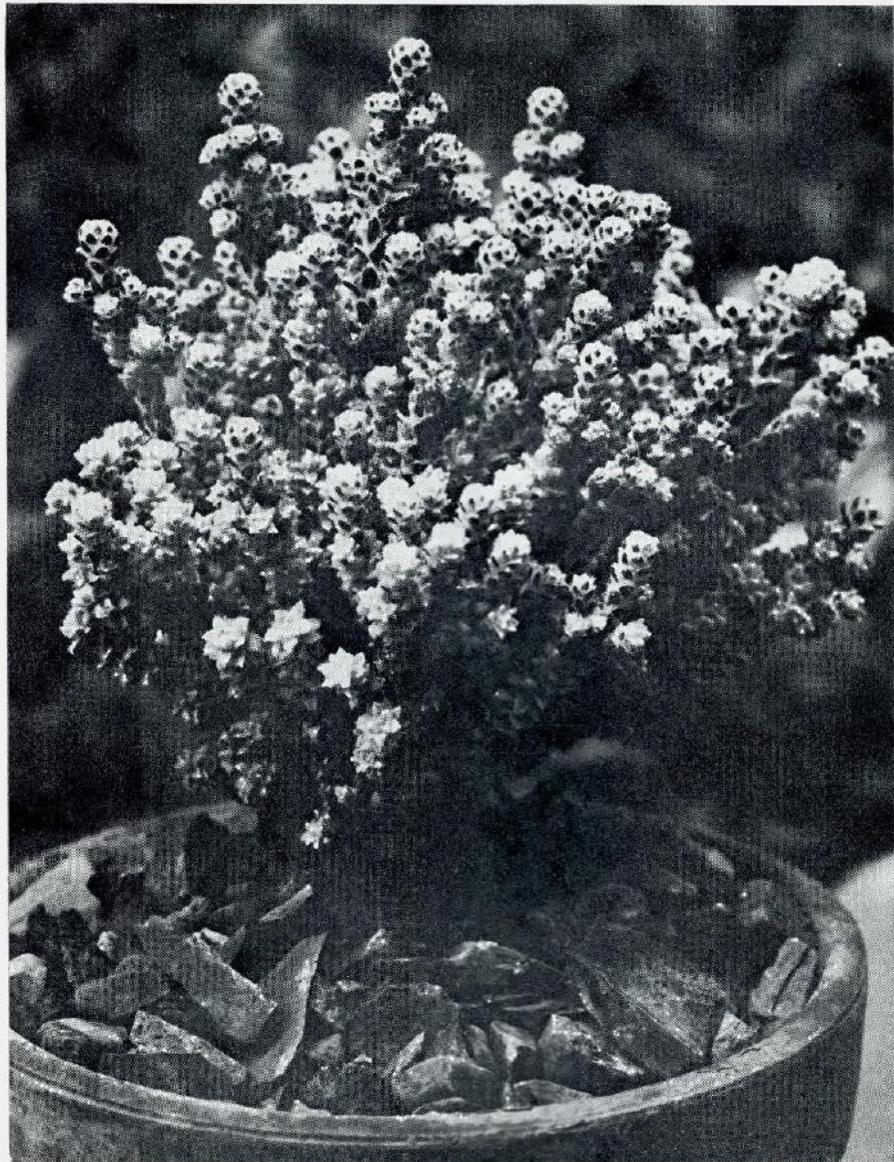
Helichrysum coralloides. This rather rare member of the compositae is an endemic of Mt. Terako at the northern end of the South Island of New Zealand.

Anna Griffith in *Collins Guide to Rock Garden Plants* describes *Helichrysum coralloides* as "an upright branched shrublet of up to 10 inches. . . . Its sturdy whipcord branches are dark green with glossy adpressed leaves showing a narrow white edge, and the new growth is white-woolly. The flowers . . . are in tiny white flower-heads, borne terminally."



Chamaecyparis obtusa 'Caespitosa'

Joel Spingarn



Helichrysum coralloides

Joel Spingarn

Jack Drake reports on p. 226, Vol. xiv, Part 3 of the SRGC Journal of finding it in the vast scree of the topmost slopes of Mt. Terako, punctuated with fascinating rocky outcrops where the plant lodged "forming hard congested domes of fat whipcord stems, totally unlike the plant seen in cultivation. The overall color was a darkish green and so hard and congested were the 'football' growths that it was quite an effort to pry the stems apart. The plants are enhanced by quite showy powder-puff flowers of orange-yellow, and seem to prefer to grow in rocky exposed crevices."



Soldanella alpina x pusilla

Joel Spingarn

Mr. Cabot reports that he grows *Helichrysum coralloides* in a dry corner of his alpine house. It is a difficult and "miffy" plant. Such a fine specimen is a credit to its grower.

Rosularia pallida. This member of the crassulaceae is of borderline hardiness. At first appearance it reminds one of a hairy sempervivum. The summer blooming flowers are creamy white and comparatively large.

Saxifraga X elisabethae 'L. C. Godseff'. This beautiful kabaschia, a hybrid between *S. sancta* and *S. burserana* 'Speciosa' is a strong grower with

yellow flowers on short crimsoned stems.

Mr. Cabot reports that he grows *S. 'L. C. Godseff'* under mist conditions in his alpine house.

Soldanella alpina. After much research Mr. Beckwith has determined that this plant, shown as *Soldanella alpina*, is in fact not *Soldanella alpina* but a hybrid of *S. alpina* and *S. pusilla*.

The plant in question was grown from seed sown onto a gritty mixture. Germination was excellent. Some of the seedlings were potted on and the rest were planted outside on a North-facing scree. Those planted out survived the winter, but losses did occur to those that were planted in the less shady areas during the summer.

The soldanella derives its name from the Italian word *soldo* since the leaves somewhat resemble small coins. Farrer gives the colloquial name of Moonwort.

Cyclamen coum. This member of the primulaceae is a native of North Africa and Southern Europe.

Mr. Grieshaber reports that the plant exhibited was grown from seed sown in 1973. The soil mix for potting is the same as the one for *Anchusa caespitosa*, namely equal parts of loam, humus, and sand.

Cyclamen coum is considered to be a variety of *Cyclamen orbiculatum* with rounded dark green leaves entirely unmottled. It is evident from the accompanying photograph that there is an interloper in the pot with *Cyclamen coum*. It is *Cyclamen atkinsii*, also a variety of *C. orbiculatum*, distinguished by its silvery markings on the leaves. This plant was judged to be Best in Show.



Saxifraga burserana 'Gloria'

Joel Spingarn

Saxifraga burserana 'Gloria'. This outstanding selected form of *S. burserana* was named by Farrer. It occurs in the Eastern Alps and the Dolomites. "Typically the leaves are glaucous grey-green, stiff, spiny, and rather erect. The pure white flowers are borne on 2 to 3 inch reddish stems."

Calluna vulgaris 'Dainty Bess'. Although closely identified in our minds with Scotland, *Calluna vulgaris* grows wild over most of Europe and Asia Minor, and inhabits the western hemisphere in Labrador and Newfoundland. It is naturalized on Cape Cod and elsewhere in the Northeast.

Anita Kistler acquired this plant as a small rooted cutting four years ago, potted it up, and there it has remained unfertilized for the past four years. It is placed in the alpine house during the winter. It is, however, perfectly hardy, wherever heathers can be grown. *C. v.* 'Dainty Bess' can be expected to bloom any time from July to December. As with all *Callunas*, *C. rigida* being the exception, frost promotes a rich bronze coloring of the foliage.

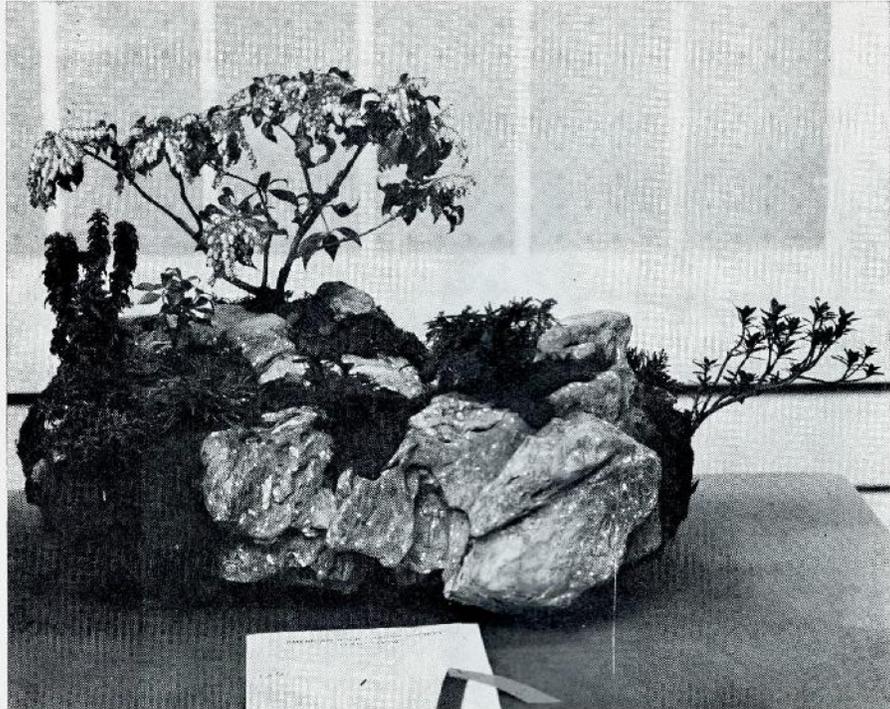
Chamaecyparis obtusa 'Caespitosa'. This dwarf conifer is the result of a chance seedling of *C. o.* 'Nana Gracilis' in the nurseries of W. H. Rogers of Red Bank, Southampton, Hants. It is one of the smallest conifers in cultivation today. Hornbrook describes it as making "extremely dense tuft, or series of tufts, so tightly packed together as to present the appearance of a solid ball of green."

The plant shown is 15 years old and is 4 inches high by 6 inches wide.



Calluna vulgaris 'Dainty Bess'

Joel Spingarn



Japanese Garden-on-a-Rock

Joel Spingarn

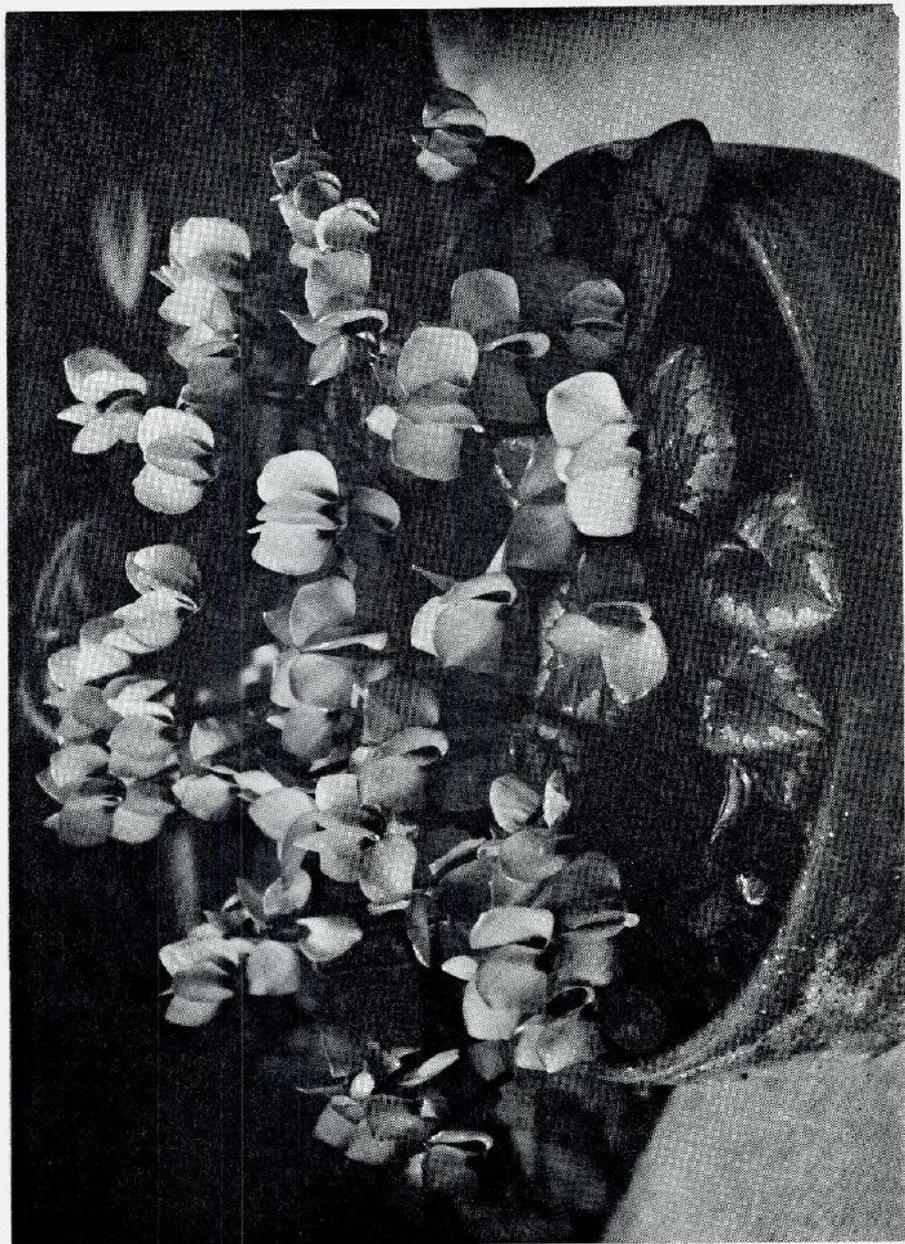
A Japanese Rock Garden (Trough Planting). Mr. Epstein's exquisitely planted trough was indeed a Japanese rock garden, with all of the material indigenous to the Island of Japan. The rock on which all the material was planted is also Japanese, having been imported by Mr. Epstein. It is from the Gifu River on Honshu Island.

The plants displayed are (in clockwise order, starting from the top): *Pieris japonica* 'Bonsai'; *Saxifraga cuscutiformis*?; *Juniperus chinensis* 'Shim-paku'; *Rhododendron keiskei*; *Chamaecyparis obtusa* 'Dainty Doll' (Spingarn origination); *Rhododendron indicum* 'Chinsayi'; *Gymnaster savatieri* var. *pygmaeus*; *Cassiope lycopodioides*; *Cryptomeria japonica* 'Tansu'; *Euonymus japonica pygmaeus*; *Pieris japonica* 'Bisbee Dwarf'; *Acorus gramineus pusillus*.

There will be a further report on the show to be held at the annual meeting at Valley Forge, Pa., in May. The Bulletin cannot, unfortunately, publish accounts of the activities of individual chapters but would be very glad to receive accounts of the inception of Flower Shows anywhere.



Mark McDonough, of 94 Grove St., Lexington, Mass., 02173, "desires correspondence and seed exchange with another ARGs member, preferably a member living in the northwest part of the country."



The Best-in-Show, Cyclamen coum

Joel Spingarn

Herewith an excerpt from a letter from Carl Gehenio to Frank Cabot:

"About propagating *Anchusa caespitosa*, I find its cuttings are among the easier subjects to root. And this holds true at just about any time of the year. During May and June — August, September, and October they make roots in less than two weeks, at other times a little longer. Though some books suggest root cuttings, I've never had success with this method for *A. caespitosa*.

"Due to the congested growth habit and the brittleness of the leaves it's a little difficult to sever the cuttings. A small portion of the fleshy, thick stem, 1/4" to 1/2", is needed to insert into the sand. For most all of my propagating of these now I knock the plant from the pot, shake the soil from the roots, and do the cutting from the underside of the plant. This way it's easier to see where to cut, and I can remove as much as 80% of the top. The roots are then pruned some to compensate for the top loss and repotting is done in a smaller size pot. Soon they are well on their way again. If cuttings are removed in a normal way, only 30 to 40% is the maximum at one time and care should be taken to avoid overwatering.

"If a cutting is accidentally sliced through the center, it can be rooted too, if a portion of the fleshy stem is retained."

When asked for permission to print this note, Carl agreed and reported:

"Snow has just recently melted away from an area where one is planted in the garden and it still looks good at this time, with growth activity apparent even at this early date (March 3). Late winter and early spring is still a difficult period, but I feel certain now, even if loss should occur before stable weather conditions return, that with some further trial these can be adapted to gardens here in the east."

I would have been terrified to so treat such a choice rarity, but Carl, a great plantsman, with the masterful daring of a brain surgeon who knows exactly what he is doing, has no qualms.



Globularia cordifolia

The following remarks from Irene Hochheimer speak for themselves:

"That's easy!" Just put it in a shady spot, in acid soil . . . and it *must* grow!" We aren't going to hear such words of advice from Richard Langfelder any more. Anyone who has seen the beautiful clumps of *Gentiana acaulis* or *Cyclamen hederifolium* or *Phyteuma comosum* might think such results must be simple to obtain, too.

Richard's plants were his children, in need of loving attention, tender care, and occasional scolding. His knowledge was keen, but his almost instinctive handling was keener.

We who knew him well shall miss his wit and humor, his sharing of knowledge and his bright mind. For many years he was a familiar figure at all area meetings, where he joined enthusiastically in discussions. He contributed generously, too, to our periodicals.

Like the many plants he gave to us novices, our memories of him will continue to grow.

Linc Foster reports on the rock gardener's dilemma, or should we say quandary—that is a predicament.

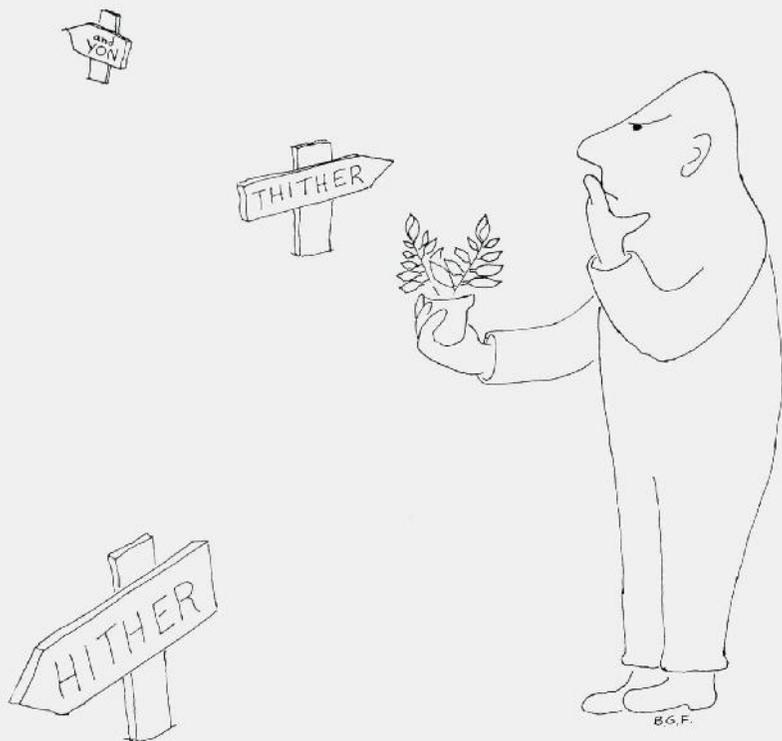
The act of rock gardening is a wonderful game and a contest. The rules are laid down by nature, but the moves of the gamesman and artist are infinite.

When a glorious new plant arrives in your hand, thanks to the generosity of a fellow addict or by virtue of your own dedicated seed growing, where in the world, your little rock garden world, do you put it?

Do you rush into the house and search through your library to find all those vague and contradictory pieces of advice? Or do you remember them, already having read about it over and over again and longed for it each time? Anyhow, now you have it. The label tells you *Amphidubia simplissima*. Can it be true? It does look a bit weedy for that surpassing rarity. Yet the foliage seems about right, just a bit drawn perhaps. Let's not try to key it down in those difficult reference books.

What was it though that it wanted in the way of soil and exposure? Yes, and moisture? Ah yes, very well drained, definitely lime loving, but not in the full eye of the sun, never to be parched. Perhaps running moisture at the roots is the secret. Definitely not here: too dry, too much sun. Ah, there that special tufa bed, north facing. Perfect.

You search the whole area for a free pocket. Not one. What to take out? Not that. Not that. Each plant there has a special history and long roots in your own history as well as into its present site.



Well, let's keep it in the pot in the frame until it flowers to check it out. If it does bloom and proves to be what the label says it is, think what a sensation that could be at the plant show.

Aphids? No they can't be. Those must be curious stem growths never described in the literature. But let's spray it just to be on the safe side.

"Yes, I'm coming! Who's calling? Oh no, I'm sorry. Just say I'll call back. I'm busy."

I really should redo that bed. Colors are all wrong. Look at those stinkers taking over. Why did I do it that way? Wish I had known when I worked on that whole blankety garden what I know now. I'm too tired, I guess, to do it all over again. Maybe one section at a time. Or just pockets.

I'll call back. Maybe it's a poker game.

More on Groundcovers from T. V. Palmer

Although a member of the Delaware Valley Chapter for several years I just recently joined ARGS. I took advantage of the special offer on back numbers of the *Bulletin* and how pleasant it has been to read of rock gardening and plants from all over the world while the winds howl and the snow swirls and the thermometer plummets this terrific winter. I read them from cover to cover but I admit that articles that have relevance to my own gardens are especially treasured. I have just finished reading in the Fall 1975 issue Edward B. Leimseider's account of ground covers for the shade. I also do considerable gardening in the shade, with a half acre devoted to natives and another half acre with emphasis on exotics. It seems I have tried most of the varieties Mr. Leimseider mentions and have had success with nearly all of them except the Northerners — *Clintonia borealis*, *Coptis groenlandica*, *Cornus canadensis*, *Gaultheria procumbens* and *Linnaea borealis*. Guess our summers are just too hot for them. To compensate I have searched for and tried out others which Mr. Leimseider did not mention, perhaps due to lack of space, but which I feel are useful and worth including.

Other natives I would like to recommend are *Phlox divaricata* (sun or shade), *Senecio aureus* (Golden Ragwort), *Meehania cordata*, and especially the Eastern wild gingers, *Asarum arifolium*, *virginianum* and *shuttleworthii*. These grow as evergreen clumps without runners but with sometimes shiny and mottled leaves. On the other hand, deciduous *Asarum canadense* runs wild and should be relegated to unrestricted areas along with other ambitious prostrates such as *Lamium galebdolen* and the mayapple. Two native violets with leaves close to the ground appeal to me. They are *Viola blanda* which spreads evenly wherever I want it and *Viola appalachiensis*, the very small leaved gem which Dr. Wherry brought to our attention. Another native I like is the dainty brownstem spleenwort fern (*Asplenium platyneuron*) which "seeds" readily and provides an interesting ground cover among small rocks. I also admit to being lucky in succeeding in introducing *Lycopodium lucidulum* (shining clubmoss) and *L. obscurum* (groundpine) in my woodsgarden, but *L. flabelliforme* (running pine) will not cooperate with me.

Among the exotics there are a few I should also like to add to Mr. Leimseider's list. Foremost is evergreen *Sarcococca hookeri*. It is wonderful although it is taller than some so is better under such plants as rhododendrons. *Asarum europaeum* is another fine evergreen but to me exasperatingly slow.

Asperula odorata is dainty and easy and the Pulmonarias, *Pp. angustifolia* and *saccarata*, very stisfactory. Two interesting "finds" enjoying the shde are *Saxifraga sarmentosa* (strawberry begonia) and *Mazus reptans*. Also I want to include *Waldsteinia siberica* as it is so neat and colorful with its bright yellow blooms. *Meehania urticifolia* from Japan is larger leaved than our native kind but equally suitable. To me the most satisfactory of the primulas for woodland is *P. polyanthus*. Its variations provide a range of long-lasting color on low plants which submit to being divided every few years. Finally there are hardy bulbs for early bloom, but their-foliage season is so short that they need to be planted among other things.

I have rambled on perhaps to the point of weariness but I guess plant lovers are that way. As a former nurseryman I have found that most people simply do not know how to make their shady spots more interesting. Using ground covers is one solution. In a parallel pattern I could rave on about the numerous larger, woody plants tolerant to the shade but that is hardly a subject applicable to rock gardening.

Joan Means, of Georgetown, Mass., on Cortusa

At the Eastern study weekend in January, the subject of cortusa arose when Norm Deno asked if anyone was growing it. It is, he said, a recalcitrant plant, easy to raise from seed but with the depressing habit of dwindling away in a year or so. I am certainly not going to claim success, since any plant may suddenly dwindle in my ghastly gravelly subsoil (as often as not, because ants have nested in the roots). Still, I have grown *cortusa mathioli* for several years and I like it, if not with the passion one gives to lewisias. My excuse for growing it is that in his book Linc Foster calls it a pleasant primrose relative and he does not warn of any special difficulties.

In 1974 I ordered seeds. I placed them in a plastic bag with other seed packets and, in my usual slapdash manner, put them in and out of the freezer perhaps six times over the period of a few weeks. Planted in a mix of Jiffy Mix and granite hen grits, with more grits on top, the *cortusa* seeds popped up like petunias under the fluorescent lights in my cool (55 degrees) basement. By May, the seedlings were big enough to take to a chapter plant exchange. They were a dud: no one wanted them and I could strike no good deals. I also brought along a mat of *Mazus repens alba* which had become so thick it was smothering some miniature bulbs. I didn't advertise ownership, since I'd been throwing a good bit of the mazus on the compost heap. Ironically as it turned out, that's what everyone wanted (it is of marginal hardiness in New England), but by the time they'd discovered who brought it, their best plants had been bargained for and I came away emptyhanded. Beginner's luck isn't always good.

At any rate, I kept a half dozen cortusas for myself, and planted them out on a slope beneath white pines. The huskiest plant went between two rocks where it would get afternoon sun for perhaps three hours; the rest, planted rather less carefully, went where only a few dapples of sun reached. All received primrose treatment — i.e., a shovel of compost and well rotted cow manure. The huskiest plant is still the huskiest. Of the others, two died immediately and the rest are rather small, but they have

bloomed. The "soil" under the pines is, as might be expected, very acid (about 4.5) and rather dry — the typical habitat, in fact, of *Cypripedium acaule*. I do water this garden, so the cortusa has, as its companions, the usual woodland assortment of trilliums, phlox, primula, *Linneas borealis*, *Tricorytis hirta*, etc. I may have fed the cortusas last year when I threw bone and blood meal at the primroses; I can't swear to it.

Last summer, my "best" *cortusa matthioli* was perhaps 6 inches across and growing slowly. The bright red-purple bells on 6-inch stems are very small but brilliantly effective against a gray rock. The color, indeed, is far too vivid to be called deep magenta — American Beauty is more evocative. The garden effect is of a very elegant and restrained heuchera, and the leaves, especially wonderful when they first rise in the spring, are reason enough to grow the plant. Still, I don't think anyone (except me, the proud mother) has noticed my plant, even in bloom with a dozen flower stalks. A clump the size of a dinner plate — or a good drift of smaller plants — surely would have considerably more impact. If the mother-hen syndrome brought on by Norm Deno's remarks can be suppressed, perhaps a policy of benign neglect will allow my cortusas to reach a size where at least my husband will notice them!

A Note From Roy Davidson:

Sisyrinchium Confusion Compounded

Even as the words intended to preserve the cultivar name "Macounii Alba" were coming to you (Spring Bulletin 1976) the report of further taxonomic study of *sisyrinchium* was in press, and the attempt to use "macounii" in the horticultural sense (which had seemed legitimate since Hitchcock had given it no taxonomic recognition) has now been shot down dead.

Published in *Brittonia* 28/2 (issued 21 July 1976) is Douglass M. Henderson's report "A Biosystematic Study of Pacific Northwestern Blue-eyed Grasses", which details his examination by various techniques of 12 of the 13 species found within the region and represented by collections from 67 natural populations. In the course of the study the 13th, *S. angustifolium* Miller was to be given an interpretation differing from that Hitchcock had accorded it, a decision which excluded it from the area studied and from the report, and both morphological and cytological evidence was found supporting the others, many of which were described by Greene or Bicknell 75 or more years ago. Evidence also disclosed existence of a heretofore unrecognized new species with large reddish-purple flowers, and this was christened *S. hitchcockii*.

As the result of the decision to exclude *S. angustifolium* from consideration as a northwestern constituent of the genus, the proposal of last spring in this *Bulletin* falls apart. We could now call the plant in gardens *S. bellum* 'Macounii alba', only to add to the confusion. From its appearance, behaviour and origin (San Luis Obispo Co.) there is no doubt that it is an albino *bellum*: the flower is full-petaled, not starry, the bracts only just subequal, the stem branched freely, the roots conspicuously yellow.

This puts us right back where we started, and it might be best to begin anew by proposing that the cultivar be called 'San Simeon' or some other vernacular name, if not simply *S. bellum album*, which is what it is, taxonomically.

OF SOILS, SEEDS AND SURPRISES

Viki Ferreniea, Greenville, N.H.

A lecture delivered at the 1977 Study Weekend in Albany.

This past summer I was fortunate enough to attend the American Rock Garden Society meetings in Seattle and Vancouver and to visit some very interesting floral areas in Washington, Wyoming, and Montana. The trip was very rewarding in many ways; in particular it gave me my first opportunity to observe in the wild some of the native American plants that have interested me, growing in their chosen environment, under conditions in which they do best, even if it was difficult for me to understand how they could survive, let alone thrive, under such conditions. It opened many new channels of thought in regard to how I should go about growing certain untried plants, or change the methods I was using. In some cases it made me realize that cultivation, certainly in the east, is not possible for some alpinists, and that my pleasure in these plants should be to see them thriving in the wild instead of struggling away unhappily in the confines of what to them is a totally alien environment. Such plants would include for me: — *Primula parryi*, *Gentiana thermalis* and the western delphiniums.

No single factor is responsible for a thriving viable plant; a number of interrelating elements delicately balanced provide the situation in which a given plant can live and in the words of Howard Porter "produce a population". To my mind one of the most critical components of a successful floral eco-system is the 'soil'. By soil I mean the substance in which the underground portion of the plant is growing. This may sound like a ridiculously basic statement, but so often the reference to 'a soil' infers a loam mix, whereas so many of the alpine soils are virtually ground up or decomposing rock in the form of gravel, and this has a high mineral content. If any humus is present it is usually in the form of peat. And no matter how often we read or hear the recommendation to use more sand, we seldom increase the proportions in our mixes to a satisfactory level. In our gardens we substitute sand for natural gravels, but sand does not have a high mineral content, and perhaps this contributes to some of our problems. The obvious reason for all this sand is drainage, one of the first lessons we learn. Another possible reason came to mind last fall while I was constructing a pool and stream for my rock garden and labouring to get a 6" base of sand for the concrete, to prevent it heaving and cracking. Could it be that sand not only provides drainage but also protects the roots from damage caused not by the surface frost heaving we are so familiar with but by earth movement deeper in the soil that could crack and tear brittle frozen roots?

Another problem often overlooked is that at higher elevations these treasures of ours grow in soils that are pretty cold, in the range from 45°F to 65°F and bacterial action is virtually absent, or low enough not to be a problem. Soil temperature readings for *Primula parryi*, in the shaded limestone gullies of the Big Horn Mountains varied between 45°F-49°F at depths of 1"-3". When we bring these and similar plants into our warm soils, they are exposed to bacteria to which they have no resistance. The inhibiting of rot by drainage is probably one of the most valued attributes of sand bed culture. The problem of rot is evident

in the culture of bog orchids, too. Root and crown rot are the most common cause of failure with them. We tend to put them in soils that are rich in humus and constantly moist, an ideal environment for microbiological activity. By growing them in an artificial bog containing a mix that is predominantly gravel and sphagnum moss (dried sphagnum is preferable to milled, which is too fine), keeping the area well watered in the summer, and feeding with a liquid fertilizer we do much better with them — in fact they thrive. This method has worked well with *Cypripedium guttatum*, *CC. candidum*, *arietum* and others. Finally this artificial bog is covered with a carpet of bog vegetation that can be rolled up from any boggy situation and laid over the soil mix. The plants are placed between the layer of bog vegetation (which is mostly live sphagnum) and the soil mix. In this way the roots are kept moist and well oxygenated, but water drains through and they can put feeder roots down into the soil mix at will.

Often things are not obvious at first glance, and we can easily be fooled into giving plants the wrong type of environment. A favorite of mine, *Polygala paucifolia*, one I have always associated with rich acid soils that are cool and moisture-retentive, was growing prolifically at Bartholomews Cobble, a limestone area in the Berkshires of Massachusetts. In fact it was the best stand I had seen, but I wondered why it was doing so well on lime. On closer examination I found that it was only rooting down into the crevices where hemlock and pine debris had accumulated, making an acid soil. Tucking plants into crevices is not just aesthetic. Micro-climates are a very important part of rock gardening and can make the difference between success and failure; they can provide just that degree of difference that puts the balance in favor of the plants. *Cornus canadensis* and *Linnaea borealis* are plants of cold soils that remain cool and damp during the summer. To help establish them in a garden, decayed wood can be added in quantity to the soil or an old rotting log can be sunk so the roots can grow into the wood, which remains cooler than the surrounding soil and retains moisture to a much greater degree. Also situating them near water where the temperature is cooler than the surrounding air, or better still having water constantly splashing on their leaves from the spray of a waterfall, allows both plants to be grown further south, out of their heat tolerance range. *Dalibarda repens* can be deceiving, too. In the wild I have found it at its best when trailing through the loose fibrous top layer of decomposing woods vegetation and not putting roots down into the more established soil layers, and I have also found it in full sun in sphagnum moss!

Lack of hardiness is often a reason for failure, or so we think sometimes. There are, however, groups of plants that are much hardier than we give them credit for or than their range would indicate. Fred Case has shown this to be the case with sarracenias, the southern forms of which grow well for him in Saginaw, Michigan. In cases such as this it may be other cultural factors that cause a plant's demise. *Stokesia laevis*, having a limited natural range from South Carolina to Florida and Louisiana, is considered hardy in Connecticut, but questionably so. Too much wetness in the spring or fall leads to its disappearance, but I have had it growing in the bed in front of my house in southern New Hampshire for five

years. The plants are thriving and have been divided frequently; they also set prolific seed which germinates readily. New Hampshire is colder than Connecticut, but maybe the soil freezes sooner in the fall and frost leaves the ground later in the spring, so that the damp period when they seem to run into trouble is avoided. Also when paths are made around the house in winter with the snow-blower this area gets an extra covering. This hardiness may depend on balance of interrelating factors and the quality of micro-climates. Experimentation is important and careful records must be kept. Finding the right site and situation for a plant can be one of the most difficult achievements. How can we simulate wet seepage areas, fed in the spring by snow melt and cooled by altitude, an alkaline bog, home of the showy lady's slipper, or those chilly limestone gullies of the Big Horn Mountains? Sometimes we can't, but there are cases in which plants will adapt to situations very similar. If their essential needs are met, the others are less critical.

While seeds are the easiest form of dissemination and one of the most suitable ways of obtaining alpine materials, collected seeds offer problems. A number of seeds rapidly lose their viability: *Sanguinaria canadensis* needs to be sown fresh before the caruncle dries out, or germination becomes erratic and poor. There are those plants in which the seeds are dormant when they are freshly ripe but will germinate if exposed to certain light rays which can penetrate to a depth of one inch in sandy soils. Could this be one of the reasons why those difficult plants so often spring up in disturbed soils?

Some seeds have hard seed coats, or the seed covering may contain chemical inhibitors. In nature alternate freezing and thawing, fire, digestive systems of birds, soil micro-organisms are methods to release seed-covering barriers to germination. We use moist chilling, stratification, and other after-ripening methods. In general 6 weeks to 3 months is enough time, but in some species this period is as long as 6 months, and any break in the treatment only increases the problem of successful germination.

There are seeds which will not germinate fresh, but in which germination is inhibited by high temperatures. We could expect many alpenes to fall into this category: *Camassia leichtlini* and *Calochortus macrocarpus* germinate only below 41°F, and *Lewisia rediviva* only below 50°F. It is quite likely that the western delphiniums fall into this group.

Asarum canadense, *Lilium canadense* and *L.superbum* are examples of seeds which require a high temperature before a cold period before germination can take place. In seeds where it is just one factor that restricts germination it is called PRIMARY DORMANCY, but in some cases as in trilliums there are two distinct elements involved and this situation is called DOUBLE DORMANCY. The first delay is due to a hard impervious seed coat, the second is an embryo problem, and these problems must be treated in sequence. The first chilling removes the seed coat block inhibiting root growth. Then moderate temperatures permit this growth. A second period of chilling removes the embryo problem inhibiting shoot growth, and the final warm temperature permits shoot growth. Any plant that, like the trilliums, has berries, or any fleshy type of fruit, should have the pulp removed since inhibitors could be present which can contribute to germination difficulties. Keep a close eye on the ripening fruit, or ants may make off with it first. In

order to get these diligent workers on your side, collect the seeds and place them where the ants can clean them without dispersing them. It is the pulp they want, not the seeds themselves.

A genus I like very much and feel is not used nearly enough in our woodland gardens is *Disporum*. The species make an excellent back drop and provide for medium-height plant structure in the shady rock garden. But seed germination seems very difficult. Last fall, tired of my failures with seed, I set about dividing the large clumps of *Disporum maculatum* and *D. lanuginosum* in the garden. While poking about in the clumps I found them to be full of sprouting seeds, obviously this year's, but only root growth showed. Also there were many seedlings of between 1 and 3 years old. From this I concluded the seeds need to be fresh and perhaps, like *Jeffersonia diphylla*, they do not like pot culture; also maybe this genus has the problem of double dormancy.

We need to review and re-evaluate some of our ideas on germination and in some cases discard old dogmas that have been perpetuated by habit. In seeds of wild species, germination is set to occur during the period of the year having environmental conditions most likely to favor survival of the seedlings, not when it is convenient for us or when we think this should occur; we often lack understanding of the complex and varied means by which germination is achieved at the proper time when all other things are in balance, when water, light, temperature, the supply of oxygen and internal conditions of the seed itself are favorable, when all chemical and physical barriers to germination have been eliminated.

There are thousands of citations on seed germination — of lettuce, wheat, tobacco and the old faithful cocklebur, but what of alpenes and rock garden plants? The only large-scale work was done back in the 30's by the Boyce Thompson Institute, and this has not been superseded by more advanced studies. The work that has been done is to be found in the pages of our own *Bulletin* and in the publications of its sister organizations — your work, your observations and findings. Let's go on with this work, look more deeply still into the problems surrounding the plants we enjoy most, and try to unlock the doors to a greater understanding of the intricacies involved in the successful cultivation and propagation of some of the most difficult and rewarding of plants.

HOW TO GROW: *TROLLIUS LAXUS*

Norman C. Deno, State College, Pa.

The expanse and homogeneity of the woodlands of Eastern United States insure the survival of most of its characteristic species. As a result, there are only six endangered species listed for Pennsylvania. One of these is *Trollius laxus*.

It may come as a surprise to discover that there is a native trollius in Pennsylvania. It is, however, a rare species. I know of only one station in the wild, providing the phrase "in the wild" can be applied to the roadbank of a major U.S. highway in northern New Jersey. It appears to exist in this location thanks to regular mowing of the roadbank as it does not stray into the acres of adjoining marsh or adjacent untilled fields. This may point to the reason for the precarious existence of this attractive species. It is intolerant of competition, yet it favors neutral moist

soil which is so conducive to the growth of grass.

One of the few stations reported for *Trollius laxus* in Pennsylvania is Centre Furnace, Centre County. This furnace still stands 500 feet from my house where I write this note. The marsh still lies in sight of my window. There are still the springs over the low brow of the hill and streams join below within my sight. Marsh marigolds (*Caltha palustris*) and marsh violets (*Viola cucullata*) still grow down below, but it was over one hundred years ago when *Trollius laxus* was last seen at Centre Furnace.

Any discussion of *T. laxus* must first face a problem of nomenclature. In addition to this rare eastern species there's a common Rocky Mountain trollius, which is also known as *Trollius laxus*. The western form may be doubtfully distinct botanically, but from the horticultural viewpoint, the two forms are different, the eastern form being much the more attractive.

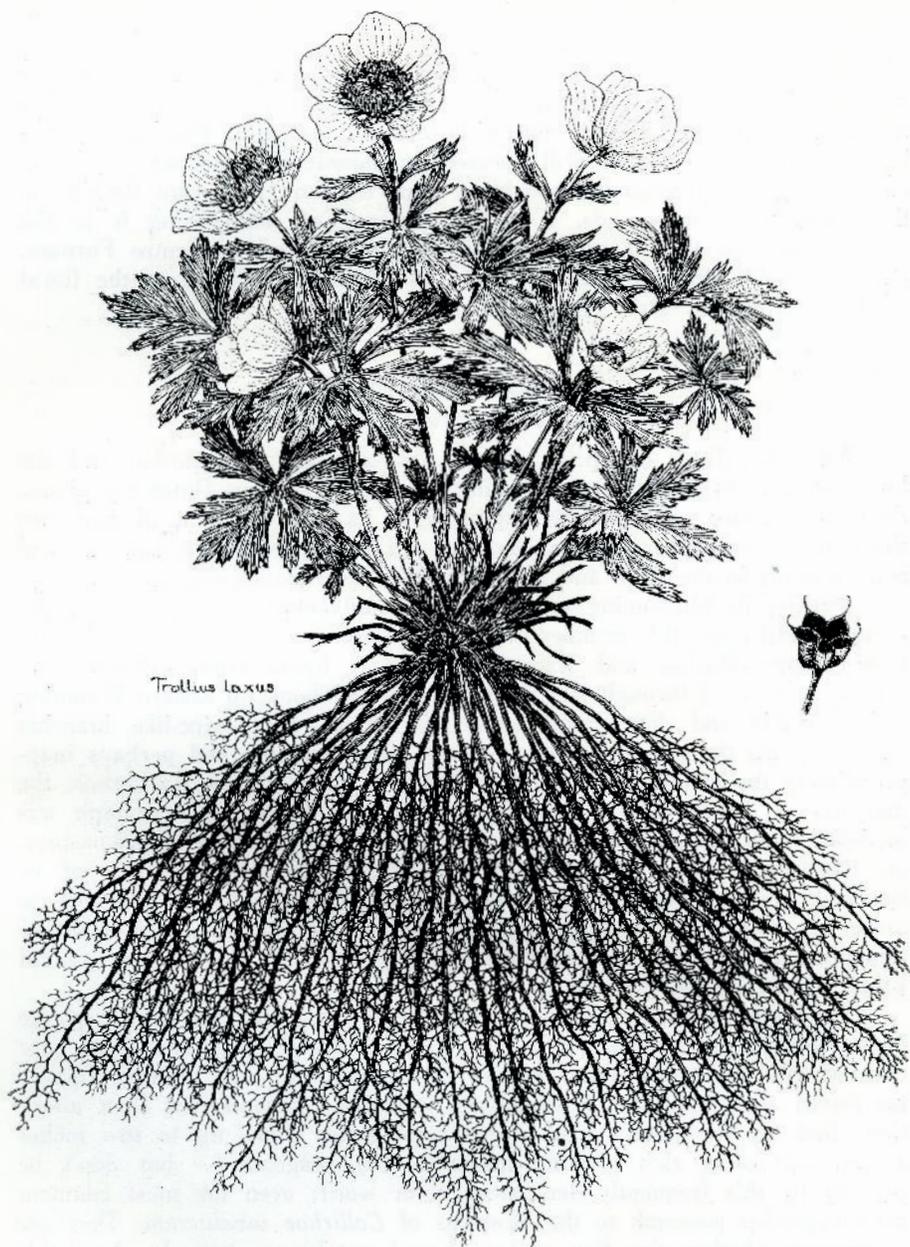
The western form, as I have seen it on Beartooth Plateau in Wyoming or on Washington Pass in the North Cascades, has greenish white or cream colored flowers. The flowers are smaller than those of the eastern form and are often on relatively taller and more upright stems. A significant portion seem to be misshapen. The leaves are smaller and are also on more upright stems. The western form has been periodically treated as a separate species, *Trollius albiflorus*.

The eastern form is a more distinct yellow in flower color, although there is a hint of brown in the yellow, and it is far from a true buttercup yellow. The flowers are a bit larger and invariably perfectly formed, at least as grown here. As the flowers nestle in their ruff of sumptuous deep green foliage, they make that perfect bouquet that so delights the alpine or rock gardener. Young plants will open full-size flowers only an inch or two above ground level. At this stage, they are most charming, particularly because the foliage is a rich deep green with some bronze shadings.

The western form is portrayed in Rickett's volume on "The Northwestern States" and in the volume on "The Central Mountains and Plains." Fortunately, different photographs were used and both clearly depict the rather poor flower color. The volume on "The Northeastern States" depicts a single flower of the eastern form and captures its haunting off-yellow color. Rickett treats both eastern and western forms as *T. laxus*, although he comments on the potential validity of the name *T. albiflorus*. One might expect the two forms to have different cultural requirements since the eastern form is found in neutral soil at low altitudes, whereas the western form typically grows at 8,000-10,000 feet in open bogs in the company of kalmia, phyllodoce, and other acid-soil plants.

The subject of this essay is the eastern form, plants of which I initially grew in an artificial wet sand bog. This bog was constructed by excavating a 3 x 3 foot area to a depth of one foot. The depression was lined with a single water-tight sheet of black polyethylene and filled with sand. No fertilizer, humus, soil, or any form of nutrient was added. The addition of very much of any of these would soon have rendered the tiny bog anaerobic, a condition that would have killed *T. laxus*. Sufficient nutrient seems to sift in from dust and rains judging from the good growth obtained.

Seed is set naturally here. The seeds are black and shiny, as is characteristic



Trollius laxus

Laura Louise Foster

of so many of the *ranunculaceae*. Equally characteristic is the way they take their own time about sprouting and require continuously moist conditions while they debate when and if they will germinate. Once germinated, they grow slowly and steadily in typical buttercup fashion. Their slowness is balanced to some extent by their freedom from insect pests and rabbit damage, a result no doubt of the poisons and toxins that are typical of the *ranunculaceae*. It takes some time to acquire any sizable number of flowering plants, and *T. laxus* is not apt to be seen on any bargain counters.

Much to my surprise, seedlings began slowly appearing outside the wet sand bed. These plants may be somewhat less luxuriant, but they grow and flower and are fully as beautiful as those in wet sand. This development has proved that *T. laxus* will succeed in limestone woodland, providing some sunlight is present and providing some moisture is present throughout the summer. As it spreads, I begin to dream of naturalizing it in the marsh below, so that it can again be listed as found at Centre Furnace, Centre County. Perhaps once again it will contribute its part to the floral beauty of April in central Pennsylvania.

CALLIRHOE INVOLUCRATA

Laura Louise Foster, Falls Village, Conn.

When the flush of spring bloom has left the rock garden and the long hot days of summer are ripening the seed of earlier flowering plants, there is one that will just be coming into its own, a plant of our own short grass prairies and the sandy dry soils along roadsides and railroad embankments in the West and Midwest, *Callirhoe involucrata*.

Starting its blossoming season in June and continuing on through the summer until frost, this member of the Malyaceae is variously called Buffalo Rose, Poppy Mallow and Wine Cups and is found from Minnesota to Missouri westward through North Dakota and Oklahoma to eastern Wyoming and Colorado and down into Mexico, its tough, hairy vine-like branches trailing across the parched sun-baked soil. Unaccountably and perhaps inappropriately the generic name of this dry-lands plant honors Kallirrhoe, the daughter of Achelous, a minor Greek river god. Perhaps this nymph was banished from her riverine home to the desert for some grave misdemeanor, or, like some of our young people today, she became impatient of or sickened by the easy life along her father's river bank and ran off to make her own way in a more challenging world. The specific name of this plant is, however, more pertinent. It is earned by the three involucre bracts directly beneath the five-parted calyx.

The leaves of Poppy Mallow are intricately and deeply cut into lanceolate lobes that are themselves cleft into slender pointed segments. They are covered with short stiff hairs and are dark green with pale veining. Though the leaves are handsome in themselves, it is the blossoms that float above them that are the plant's true glory: great satiny cups, up to two inches across, and of a rich glowing magenta. Yes, magenta — but don't be put off by this frequently derogatory color word; even the most adamant magentaphobes succumb to the blossoms of *Callirhoe involucrata*. They are sumptuous whether the five wedge shaped petals are entirely dyed this pure deep color or whether, as they sometimes do, they pale at the base to immaculate white.

Within this salver of oriental splendor is set a column of stamens, their filaments fused to form a tube studded with creamy white anthers that, as they ripen, sift pearly grains of pollen over the inner surface of the petals. Later, after the pollen is shed, the pistil springs upward through the opening at the summit of the stamen column, the style split into ten to twenty threadlike branches, each with a stigma on its inner surface. As these rise they spread and curl like the slender arms of a sea anemone.

The seed head of Wine Cups resembles the "cheeses" of the weedy *Malva neglecta* which, as children, we crunched between our teeth with such relish. The seeds, each enclosed in a carpel, are set in a ring around the remains of the stamen column. They germinate easily and may be sown in either spring or fall. In fact, *C. involucrata* will usually self sow to provide progeny for transplanting though it has not done so profusely in our Connecticut garden. Seedlings should be transplanted early into their permanent site as even in infancy they have a deep searching tap-root that thickens and elongates rapidly as they mature, a great advantage in the droughty, hard-baked soils of their native habitat. Seed seems to be the only way in which to propagate these plants as, to my knowledge, no one has succeeded in increasing them by division or root or stem cuttings.

In the garden Wine Cups do best in a well-drained, rather sandy loam in a sun drenched site. This plant needs elbow room. It should not be overrun by taller plants, neither should it be placed too near small and delicate neighbors, for though, in early spring it displays only a neat winter rosette of evergreen leaves, its leafy flowering stems will sprawl 18 to 36 inches out from the crown by mid-summer. *C. involucrata* does well, when planted at the top of a wall where its trailing branches can fall in a curtain of interlaced leaves and brilliant flowers or on the flat as the trailing branches are not smothering and will weave among and over such stalwart plants as penstemons, dwarf iris, and pulsatillas. Its glowing blossoms are particularly lovely when mingled with the soft lavender-blue bells of *Campanula carpetica* and *C. rotundifolia*.

Though I have never had the heart to trim back the flowering stems which are studded with new buds at the elongating tips, I am told they may be cut back quite severely in mid-summer to make a more compact and floriferous mat.

Britton and Brown lists 7 species of Callirhoe in the United States and Mexico, mostly perennial, upright plants with showy flowers of magenta, pink or white. A few, perhaps best suited to the border as they sound a bit tall for the average rock garden, are *Cc. alcaeoides*, *digitata*, *papaver*, and *triangulata*.

OBITUARY: MRS. LILLIAN LEDDY

The gardening world lost a pillar of strength and an able organizer in the untimely death of Mrs. Lillian Leddy, 72, on October 14, 1976, at Mena, Arkansas. She was chairwoman of the Midwestern Chapter of ARGS with members in Arkansas, Oklahoma, Kansas, Nebraska and Iowa.

For many years she served as garden editor of the Omaha *World-Herald* even after she and her husband, Charles, retired to a country place in the Ouochita Mountains of Western Arkansas, 12 years ago. She also wrote a bird and plant column for the Mena (Ark.) *Star*.

A born organizer, Lillian founded the 160-member Mena Nature Club and within that organization formed chapters of ARGS, American Hermerocallis Society, American Penstemon Society, National Audubon Society, American Association of Retired Persons, Newcomers Club and the Mena Garden Club. Her enthusiasm for the Ouochita Mountain area and its natural beauty sparked the interest of many Midwesterners to retire there.

Her Wagon Wheel Gardens on Highway 71 south of Mena will be maintained by her brother-in-law, Rex Majors.

—Donald Peach



OUR SECRETARY, WILLIAM T. HIRSCH

Bill is an active member of the Delaware Valley Chapter, a retired mechanical engineer (Atlantic Richfield) who became involved with rock gardening through the influence of his wife Jan. She is serving as his assistant and technical consultant in the performance of his secretarial duties.

He has been a serious gardener for many years, and his interests have included many phases of gardening and many genera of plants. He has served as a Regional Vice President of the American Iris Society, is a Senior Judge of that society, and remains active in the local organization.

The Secretary is the key official of the ARGS, and his task is to create some viable order out of myriads of messy tasks presented by the unbusinesslike. In our Fall issue I reported that Bill was reluctant to send us information about himself. One of Bill's problems is dealing with an editor who loses important communications in piles of Christmas cards.

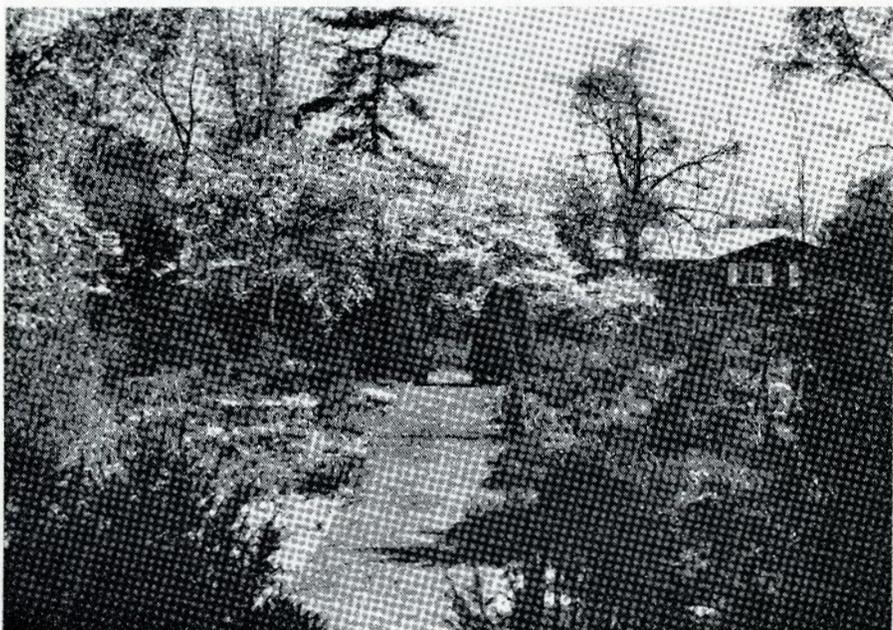
As if his normal herculean tasks were not enough, I see that Bill is serving as Show Secretary at our annual meeting. Let's all bring him flowers.

FROM CLOSTER TO SCOTLAND —
A TALE OF TWO GARDENS
Richard Redfield, Hampton, Conn.

Lest you should be misled by the title, I hasten to inform you that Scotland, of the title, is a small country village in the eastern part of Connecticut. Of necessity, the greater part of this tale will be a chronicle of our experiences in Closter, presently a typical suburban town in northeastern New Jersey, since that is where our gardening adventures began and continued for half a century, until retirement from the world of business permitted a move to a quieter and more restful environment in our present surroundings.

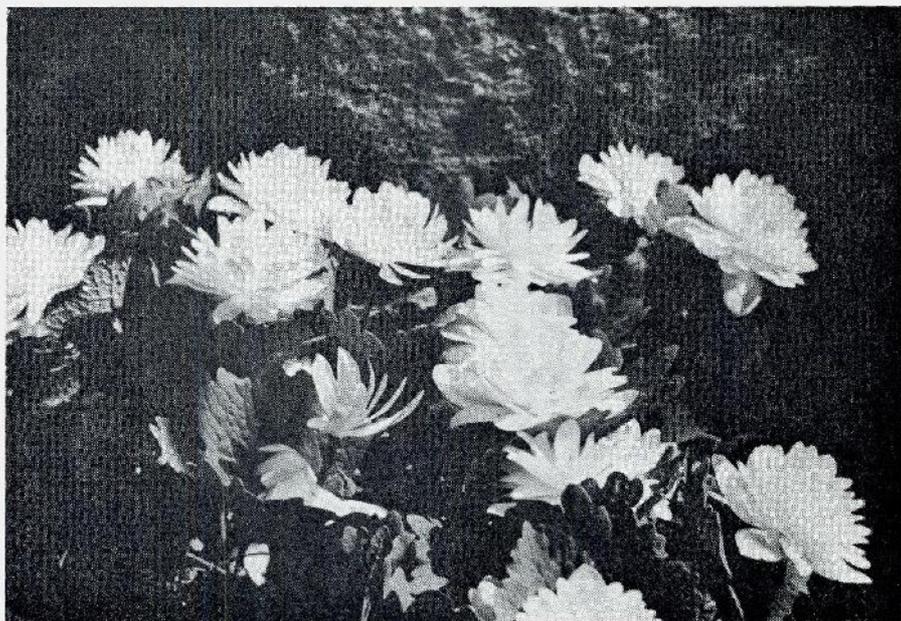
My story will begin about 1950, coinciding with the intensification of our interest in dwarf conifers, rhododendrons and the miniature plants generally associated with rock gardening. By this time we had already passed through several phases of gardening interests and began to look at the various areas with our new goals in mind. It was also at this time that an interest in color photography began, and so we were able to record the changes as they took place.

From the southeast corner of the house a walkway led diagonally out to the street, about 75 to 80 feet in length. In 1950 the borders on either side contained some old-fashioned shrubs, *Phlox divaricata*, *Alyssum saxatile*, *Iberis sempervirens*, with remnants of old varieties of bearded iris and daylilies from an earlier phase of interest, interplanted with tulips, hyacinths, narcissus, crocus and masses of *Scilla siberica*. The phlox had been planted shortly before World War II, after several previous failures. For the next three or four years it was totally neglected, apparently just the treatment it wanted, since on our return it had completely taken over. We did not remove the phlox or the bulbs, but simply cleaned out some of the shabby old shrubs and replaced them with small leaved rhododendron



The Garden Path—Closter

Richard Redfield



Sanguinaria canadensis 'Multiplex'

Richard Redfield

hybrids, dwarf conifers, several varieties of *Calluna vulgaris* and *Erica carnea*, along with *Bruckenthalia spiculifolia*, easiest of the heaths. Our interest in bulbs had turned more to the little bulbs and we planted quantities of *Crocus chrysanthus* in several varieties, *Iris reticulata*, *Scilla bifolia*, *S. tubergeniana*, *Hyacinthus azureus*, both the typical and albino forms, *Ipheion uniflorum*, *Chionodoxa sardensis* and *C. luciliae*. All of these did well and multiplied, some by self seeding. At the head of the path, on one side stood a large, old specimen of the weeping Japanese cherry and on the other side, an equally large specimen of the lovely native fringe tree, *Chionanthus virginicus*. In the shadow of the cherry tree we planted *Cyclamen neapolitanum* and *C. europaeum*. Of these two, *C. europaeum* proved the more durable, self-sowing quite freely, although never making very large corms.

On the northeast corner of our three acres, a small grove of *Pinus nigra* had provided a playground and picnic area when the family was younger. We decided that this would be a likely spot for our rhododendrons.

The high, light shade provided by the mature pines and the light, sandy soil, with a mulch of 6 to 8 inches of rotted pine needles, proved ideal, without any special treatment, other than some watering during drought years, and quite a number of the large leaved hybrids, along with *Rhododendron carolinianum* and several of its hybrids, grew into fine specimens in the next twenty years. A lone specimen of *Pinus strobus*, at the edge of the grove, afforded just the right amount of shade for a thriving colony of *Epigea repens*, in several forms, grown from cuttings in a Nearing frame. A little farther out, old apple trees, Chinese chestnuts and silver bells,

Halesia sp., provided cover for *Iris cristata*, *Sanguinaria canadensis* 'Multiplex' and several species of trillium, *Phlox divaricata* and several forms of *Phlox stolonifera*, including the lovely albino. A quantity of narcissus had been planted, many years before, among the apple trees and these bulbs continued to provide us with early spring bloom. A good specimen of *Styrax japonica* and a young *Metasequoia glyptostroboides*, grown from a small cutting to a twenty foot tree in a few short years, provided accents in this area, along with *Pinus cembra* and *P. aristata*. The sunny, western edge of this area proved to be a good spot for *Phlox X procumbens* and *P. ovata*, while in one area, with ground cover of *Vaccinium angustifolium*, we had modest success with the rather difficult native *Lilium philadelphicum*.

The central portion of the property, north of the house, was occupied by the vegetable garden, always an important part of the gardening effort.

The northwest corner, lowest spot on the property, provided a very different type of soil, stone free loam with underlying clay and near bog conditions in the winter and early spring. We believe that this may have been true bog many years ago, before development interfered with the natural terrain, since there were remnant colonies of *Viola lanceolata*, *Rhexia virginica* and *Iris prismatica*. In this area narcissus thrived and bloomed for over 40 years, without any attention, despite or perhaps because of, the soggy winter and spring soil conditions. *Crocus tomasinianus* formed a thriving colony here, with new clumps of self-sown seedlings appearing each year. Here we also grew our primulas, including the bog types, *Primula rosea* and *P. japonica*. *Primula japonica* would do well for two or three years, but, apparently because of the summer drying-out period, would deteriorate and have to be replenished. *Primula sieboldii*, with its built-in mechanism for combating drought, and some of the *P. acaulis* types continued in good health for many years, without any special attention. A plant that attracted more attention than almost any other in the garden was a striking specimen of the Japanese jack-in-the-pulpit, *Arisaema sikokiana*. Just to the south of this area, where the ground rose very slightly, we had planted a small grove of *Betula papyrifera* in 1946. These grew rapidly into good sized trees and here we grew many of our favorite native plants, several species of trillium, *Sanguinaria canadensis*, *Iris cristata*, *I. verna*, *Clintonia borealis*, *C. umbellulata*, *Asarum shuttleworthii*, *Pachysandra procumbens*, *Galax aphylla*, *Shortia galacifolia* and others, along with many ferns.

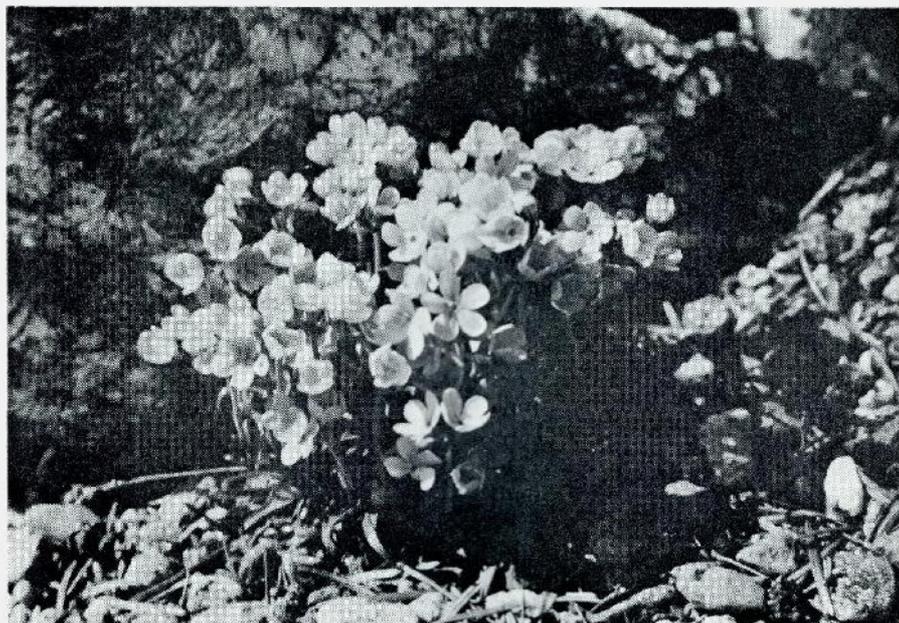
The southwest corner of the property originally housed a tennis court, the backstop at the north and elevated by a low retaining wall and behind that a pergola with *Wisteria sinensis*, in typical lavender and white forms. The tennis court eventually gave way to lawn and the retaining wall was spread out to make a small rock garden. On the dry, sunny, southern side, with poor, gravelly soil, we grew such things as dwarf junipers and spruces, *Ptilotrichum spinosum*, *Saponaria ocymoides rubra compacta*, *S. caespitosa*, *S. X 'Olivana'*, *S. X 'La Rocaille'*, *Iberis saxatilis*, *I. pygmaea*, *Cystisus decumbens*, *Iris reticulata* varieties, *Tulipa linifolia*, *T. pulchella*, *T. aucheriana*, *T. dasystemon*, even some of the dwarf, hardy species of cactus, and, for summer and autumn color, *Talinum calycinum*, *Aster linariifolius* and *Chrysopsis falcata*.

On the shadier, northern side of this area, a suitable habitat was provided for such plants as *Jeffersonia dubia*, *J. diphylla*, several named

forms of *Anemone nemerosa*, including the lovely white *A. nemerosa flore-pleno*, *Erythronium albidum*, *E. citrinum*, *E. X 'White Beauty'*, *E. X 'Rose Beauty'*, *Cypripedium calceolus*, var. *pubescens* and others. Here, about 1961, was planted *Dicentra eximia alba* and, the following year, Dr. Wherry's *Dicentra eximia 'Snowdrift'*. Subsequently, these two plants, by cross pollination, produced what is now an almost pure strain of snowy white, vigorous and prolific seedlings. The wisteria vines in this area, although a lovely sight when in bloom, did create some problems. When the blossoms fell, especially when accompanied or immediately followed by rain, they formed a thick mat, almost a crust, over the little alpiners and had to be picked off by hand. Exactly the same thing happened with the tiny leaves, which always remained green until killed by frost, and then fell in copious quantities. The albino form, fortunately, set almost no seed, but the typical form set seed prolifically and, in February, when the pods burst with loud snapping sounds, both the seeds and pods were well scattered over the rock garden. The pods, being rather durable and quite untidy, had to be picked off, once again by hand and the seeds germinated almost 100%, wherever they landed.

A garden path, commencing not far behind the house and extending about 150 feet to the back line, had originally been bordered by more practical items such as rhubarb, asparagus, blackberries, raspberries, currants, etc. By 1950 these had gradually given way to standard, old-fashioned perennial borders. These, in turn, were replaced by dwarf conifers, heaths and heathers, more of the crocus and tulip species, even a small pine barrens area, where we had modest success with such plants as *Pyxidanthera barbulate*, *Hudsonia ericoides*, *Leiophyllum buxifolium*, *Arenaria caroliniana* and *xerophyllum asphodeloides*. A collection of the tall bearded iris was replaced by a sloping screelike bed to provide a home for *Lewisia cotyledon* hybrids, *Gentiana scabra*, *Draba dedeana*, *Androsaca carnea halleri*, *Dianthus alpinus*, *D. neglectus* and others. Here we grew the only cassiope that ever improved after it came into our hands, *Cassiope X 'Muirhead'*. Tiny *Viola yakusimana*, introduced accidentally with another plant, provided a ground cover in two or three years. The only "hill" on the property was the rounded dome which covered our old root cellar and even this was eventually usurped for plants. The sunny, south side was utilized for such plants as *Yucca glauca*, *Aster linariifolius*, in a good dark purple form. The steep north side, which received only glancing sunlight, shaded from the early morning sun by a hickory tree and from the late afternoon sun by an old apple tree, provided a suitable habitat for the very dwarf forms of *Adiantum pedatum*, *Adiantum venustum*, *Shortia uniflora*, *Schizocodon soldanelloides*, dwarf hostas and, at the base of the slope, *Primula abschasicca* and several of the *P. Juliana* hybrids. Nearby, a raised bed on the north side of an old concrete platform, once the floor of a garage that had collapsed after a particularly heavy snowfall, supported *Ramonda myconi* and *Calceolaria biflora* for several years.

By this time, our three acres had become an island in a sea of suburban development and, with retirement looming in the near future, we began to consider possible homesites. Family ties finally led us to decide on eastern Connecticut. The property in Scotland, approximately 20 acres, was acquired in 1971, but had been well known to us for twenty-five



Androsace carnea 'Halleri'

Richard Redfield

years. Then began the planning for the monumental task of moving as many of our plants as possible to the new property, since subdivision of the New Jersey property and consequent destruction of many of the plants were inevitable.

In many ways we were fortunate, since we were to have four full seasons to make the move and each of these seasons was provided with ample rainfall.

Digging in the loose, stone free soil in New Jersey, even of relatively large plants, was easy, but resettling them in the stony soil of Connecticut was quite another matter. Each hole yielded a larger proportion of stones than soil and replanting was a slow, tedious process. Nevertheless, most of the plants seem to be thriving in their new home. Even four full seasons proved to be all too brief a time and despite at least two 300 mile round trips between New Jersey and Connecticut, all during the spring, summer and autumn of 1975 we found ourselves with several hundred small plants in pots after the ground was solidly frozen. Many of the small plants, particularly the little bulbs, did not survive the winter and so we must start again. On the bright side, we have acquired a tract of land relatively rich in native plants, with good stands of *Caltha palustris*, *Anemone quinquefolia*, *Erythronium americanum*, a small but thriving colony of *Cypripedium acaule* and several other orchid species. Most of the more common ferns are abundant and *Trillium erectum* occurs in quantities. *Trillium grandiflorum*, although not native, was introduced some twenty years ago and there is now a thriving colony of several hundred plants. Many of the plants we brought with us are already well established, with *Jeffersonia dubia*, *Chrysogonum virginianum*, *Iris lacustris*, *Gentiana scabra*, *Viola variegata* and others

self-sowing. Two small clumps of the double form of *Trillium grandiflorum*, divided at the time of digging in New Jersey, have, in their second year in their new home, produced about 35 blooms, in comparison to 3 to 4 in the last year in New Jersey. Other species of trillium are also doing well. *Sanguinaria canadensis* 'Multiplex' and *Iris cristata*, divided and spread out from fairly substantial colonies in New Jersey, have already made themselves thoroughly at home and should provide us with a notable display this spring. Most of the primulas are doing well, particularly *P. rosea*. *Primula japonica*, originally planted here in 1972, seems to be truly perennial in the naturally swampy habitat we can provide and is increasing rapidly. *Primula florindae* and *P. aurantiaca*, planted as small seedlings in the autumn of 1975, survived the winter and produced a few flowers in the spring of 1976 and we are hopeful they will become permanently established. Other bog species will be tried.

This winter season of 1976-1977 has provided the longest continuous snow covering in many years, almost within our memory, with a solid blanket since Christmas night and now, as I look out of the window, at the very end of February, a few bare patches are beginning to emerge. *Crocus chrysanthus*, planted in the autumn, is already appearing above ground in a sunny, protected spot. As soon as the snow melts in other spots, *Galanthus elwesii*, *Leucojum vernum* and *Adonis amurensis* will appear, and we look forward with enthusiasm to that favorite season of the gardener, spring. This is a garden in transition and still very much in the rough, but we have the space and the variety of terrain to do almost anything we wish, within the limits of our physical energy. The garden will never be finished, but after all, does any dedicated gardener ever want to reach the point where he has nothing new to look forward to?



Ramonda myconi

Richard Redfield

CALIFORNIAN IRISES IN COLORADO

Peter Callas, Boulder, Colo.

I would hesitate to write about my experiences with the Californian irises in Colorado if it were not for two facts: I have had *Iris douglasiana*, *Iris innominata* and *Iris tenax* in Boulder for over a decade, and they have always grown well in a variety of soils and exposures despite the rigors of our summers and winters. This in itself might lead someone to believe that the garden is situated in an unbelievably mild microclimate, or that I am such an exceptional gardener that I could grow palms on the North Slope of Alaska. This unfortunately leads to my second point: namely, my plants are not freaks of nature nor of circumstance. They have been gleaned at random from commercial nurseries and from the wild. More significantly, I have given starts and seedlings from my plants to local gardeners. I can fairly, if reluctantly, concede that Paul Maslin's plants of *Iris tenax* (a few blocks away) grow better than mine; Allan Taylor's four foot clump of *Iris douglasiana* (also close by) puts my plants to shame, but you'd have to go all the way to Oregon to find better *innominatas* than mine.

Do I coddle and speak to my plants? No, definitely not. For one thing, I've been traveling a lot the last six years. Besides they've done so well I'm afraid I might kill them if I did. But they have not been left altogether to their own devices among the cactus and yucca native to these Colorado foothills. It would be hard to overestimate the continentality of Boulder's climate. As I write, on Sunday November 28, the thermometer is standing at 5°F after a low of minus 10°F. It is violently sunny outside. Our year-round humidity is ridiculously low; 0% can occur in any month. Although the dryness of our winters may be a factor in increasing hardiness of all plants — they must possess an innate, genetic tolerance to cold to survive and reproduce over the course of many winters when the thermometer has dipped to minus 25°F. One plant of *Iris douglasiana* collected in the Santa Cruz mountains of California in 1958 has grown, blossomed regularly, spread and been repeatedly divided since that time. Not one winter has passed without repeated sub-zero temperatures. The plant must be cold hardy, don't you agree?

Some of my plants receive a natural mulch of pine and spruce needles from nearby trees. Most go through the winter with no protection whatsoever. Plants exposed to the worst of our wind and intense winter sun suffer at worst a browning of leaf-tips. I don't think this affects their health the next year. I am convinced that the conditions these iris are subjected to in the summer are more important in my climate than winter care. The soil in my part of town is naturally acid. Even so, I always incorporate enough coarse sand and sedge peat (the cheapest form of humus here) into the beds to make the soil as porous and loose as possible. Since the climate is dry anyway, this necessitates constant watering. I have found in fact that in such properly drained soil it's impossible to overwater during the entire growing season. Even so and despite constant vigilance when I'm around, a day or two of hot dry weather is enough to dry out the soil to some depth. If watered promptly, the irises don't seem to

be bothered, but I suspect that a long, hot dry spell in the spring would be disastrous.

Watering is even more imperative for me because I have found that even in this sunny climate these irises like a maximum of sun, but I would characterize their sun requirement by the term "cool sun." Gardening books are always talking about "early morning and late afternoon" sun. Everything seems to need this. This phrase infuriates me because no matter how I search or try, no place in my yard (or elsewhere for that matter) seems to fit this description. Either there's sun only in the morning, or only in the afternoon, or all day, or never. Or else the changing angle of the sun turns a spot from woodland to desert by midsummer. Luckily, plants aren't as exacting as books. Even an hour or two of our scorching summer sun doesn't hurt my Californicae as long as the soil stays cool or if they are protected at the roots by other plants or rocks. They do like an open spot. Plants put out in deep shade (under trees, as I have seen them growing in the wild) never bloom, hardly spread, and seem less hardy. But I wouldn't plant them with cactus and expect them to survive.

In short, given a cool, humusy, acid soil that's kept moist in the growing season and dryish during the winter, placed where there's enough sun to coax lilies into bloom, I can't imagine that they wouldn't succeed anywhere in the continental United States where there's a long enough growing season to ripen the growth.

From my own experience, I suspect that establishing the Californicae is the greatest obstacle to growing them. I have found fall planting dangerous; they dislike disturbance and take a long time to send down a new tangle of roots. For this reason plants moved or divided in the later part of the fall are apt to rot by spring. They should be treated not as "iris", but as finicky perennials. Once established, they seem utterly disease resistant and permanent.

I had no success with seed at first. I've since read that if the seed dries out once before germinating, germination is delayed for another year. My established plants taught me how to grow them from seed. In a special moss bed I made for growing Cassiopes and tricky gentians needing constant moisture and much sun, I made the mistake of planting some *innominatas* to add color and texture (the foliage of the Californicae deserves another article of praise). The conditions in this bed so suited the plants that they produced an abundance of seed. Next spring, a wheat field of seedlings grew up — to the point that they began choking out my tinier alpinines. I've been forced to move the parents and seedlings to a less comfortable spot. The lesson is simple: give Californicae the best surroundings and they are bound to thrive. I now propagate them by sowing seed *in situ*, covering with a mulch, and keeping the spot moist as possible until the seedlings are big enough to neglect. Even in my climate, they invariably produce flowers by the third year.

Finally, I suggest that if you want to grow these iris away from their homes you must simply *do* it. If I had bothered to read the literature on them as a teenager, I certainly wouldn't have them growing for me today.

The autumn blooming, moisture loving Grass of Parnassus is neither a grass nor does it grow on Mount Parnassus in Greece. It is known that Dioscorides, one of the earliest and most respected of botanical authors did write of a Greek plant he called Grass of Parnassus and later botanists, familiar with the flower we know as *Parnassia palustris* (then without a technical name) assumed, for some reasons now obscure, that their plant was the same as the one named by Dioscorides.

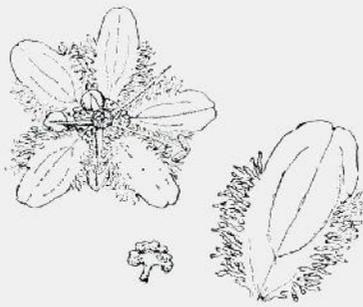
Linnaeus, in his whimsical Swedish way and devoted as he was to classical names, assigned permanently the scientific generic name *parnassia* to a group of plants that includes the European Grass of Parnassus. There are actually twelve or more species of this genus of Saxifragaceae ranging from the North American continent, through Europe to India and China.

One cannot avoid being impressed, whenever one pauses to look into the differentiation and distribution of our flowering plants, by the stunning evolutionary mysteries involved. Here is a genus of wide ranging plants that shares among its species a remarkable similarity, to the extent that a person familiar with *Parnassia glauca* of northeastern U.S. would not fail to mutter to himself "Grass of Parnassus" if he were to run into *P. nubicola* in wet washes of the Himalayas or even yellow petalled *P. wightiana* of India. Have they all wandered off from some primitive common ancestor (perhaps, indeed, on Mount Parnassus) all wearing the mark of their lineage, or has there been some parallel evolution involved?

However it is, all *parnassias* share a subtle beauty somewhat lost amidst the rich diversity of herbage that attends their late blooming and by this very late blooming suffer also an unmerited neglect among gardeners. With a full rosette of succulent green leaves they begin to assert their presence early in the season. Then, rather tardily to be sure, they send up one-flowered scapes ranging from 6 to 12 inches, bearing a mid-scape leaf, and at the summit of each a large five-petaled crisp, white blossom delicately laced with green lines. In two or three species the petals are even elegantly fringed.

In America botanists recognize at least nine species of *parnassia*, divided neatly into those that have basal leaves only membranaceous (rather thin and translucent) or those that have coriaceous leaves (leathery and dense). Other features, such as the structure of the stamenodes and the shape of the basal leaves (which range from an elongate oval to a kidney shape), separate the species within the two groups.

For those concerned with the botanical aspects of these plants it might be interesting to point out that the stamens in each individual flower ripen one at a time, starting as five short, plump tabs tightly pressed against the central pear shaped, as yet undeveloped ovary, which bears at its apex the four fleshy stigmas. As each stamen matures, the filament elongates out between the petals, bearing on its tip two large ovoid anthers which shrink somewhat as they ripen, their bases pulling away from the filament until they are but tenuously attached. In fact, no sooner have they split and discharged their burden of pollen than they fall away. The needlelike filaments, however, along with the stamenodes can still be found fringing



Parnassia fimbriata

the base of the fat seed pod long after it is dry and emptied of its numerous seeds.

The stamenodes are placed directly above the petals. These are somewhat fan shaped in outline and are cleft more or less deeply, depending on the species. They may be merely thickened scales scalloped at the apex as in *P. fimbriata* or may be slivered nearly to the base into long slender spreading filaments each tipped with a pseudo anther and greatly exceeding the true stamens in length as in *P. grandiflora*. There may be as few as three of these blades to the fan as in *P. glauca* or as many as 25 as in *P. californica*.

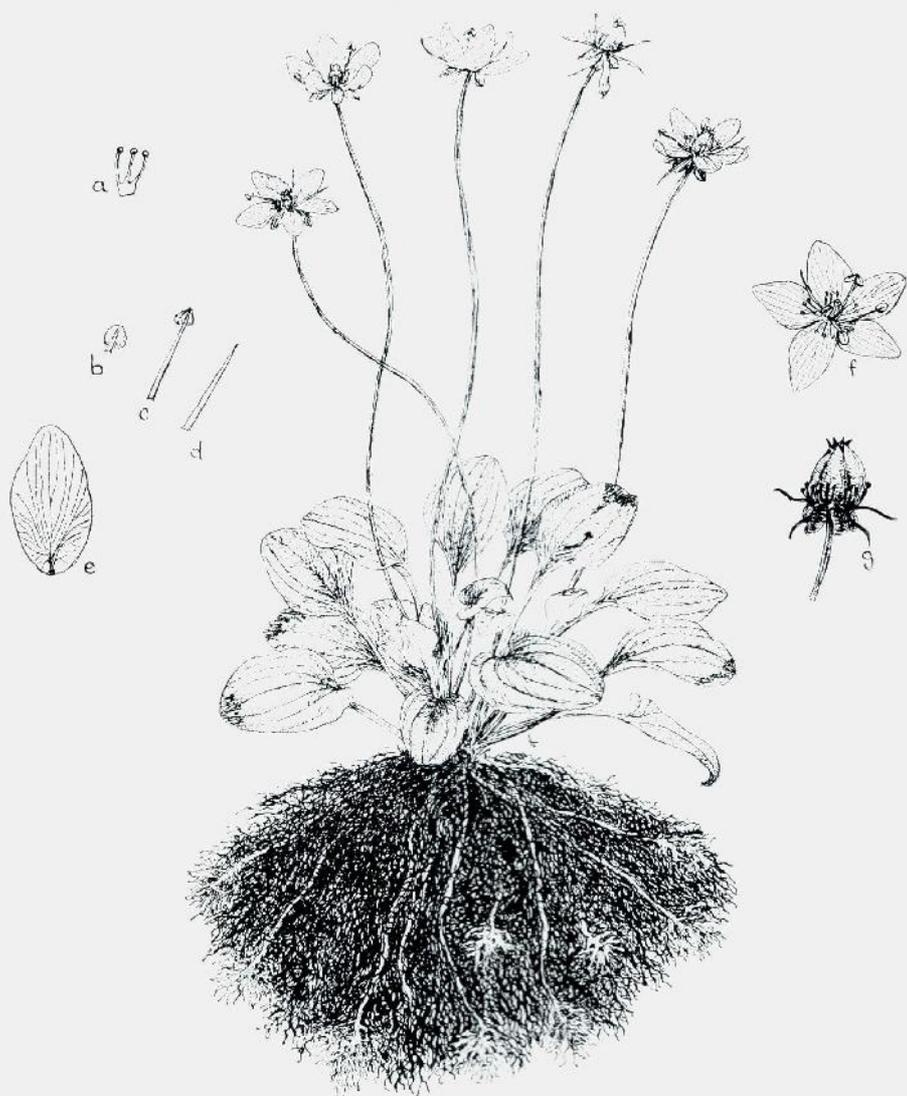
For the gardener it is only necessary to say that here is a group of species worthy of further consideration, belonging as it does to the Saxifragaceae that gives us so many other plants of outstanding quality.

Parnassias come readily from seed and once established in a congenial, moist site will self sow to form colonies that provide a quiet, yet heart warming, display in the late days of summer and early fall. In fact, one remembers Grass of Parnassus, at least in the Northeast, chiefly as a partner in that restrained display of roadside ditches during the last months of the flowering season when *P. glauca* and *Gentiana crinita* dance sedately among the roadside grasses against a background of tumbles of New England and New York asters and other late flowers less known to us than to goldfinches and botanists.

In nature most of the eastern American species of *Parnassia* are found growing in wet calcareous soils but the presence of lime does not seem to be essential for their successful cultivation. The western American species are found in very wet, mostly acidic sites. *P. fimbriata* with the lateral edges of each petal elegantly fringed and frilled frequently grows right down in the cool waters of small brooks and rills. This handsome species has so far resisted my few efforts to get it established in my Connecticut garden, but I shall continue to try,

The European species, *P. palustris*, grown from Czech seed, has established itself nicely, self sowing among vernaes primroses, and producing its green-striated white flowers for a long period beginning in July, at least a month ahead of our native *P. glauca*.

The Grass of Parnassus, also called locally Bog-Stars, may also be increased by division as the plants begin their growth in the spring.



Parnassia glauca

a. stamenode
 b. stamen-immature
 c. stamen-mature

d. stamen-old
 e. petal
 f. flower

g. seed capsule

Laura Louise Foster

Editor's preface:—Ron Evans, author of *A Gardener's Guide to Sedums (AGS)*, is a most lively and knowledgeable specialist on the genus. He sometimes likes to mix up the species, thus getting a Persian carpet effect. A further article will follow on the "genuina".

Author's preface: — Any criticisms on the grounds that there are exceptions to the following generalizations are entirely justified. Nature cares nothing for the classifications which man makes entirely for his own convenience and is continually straying out of the path!

In what I now recognize to have been my younger days I was introduced to the Alpine or Rock Garden. Among those present were certain oddities termed "sedums" — and which I now know to be stonecrops. These came to intrigue me, first because of their disconcerting variety of habit and foliage, and then because — although some specimen thereof was to be found in most gardens — information about them was not at all easy to unearth. This account is by way of being an extract of some knowledge acquired, both from literary delving and from practical experience in cultivation, in the possibility of interesting those who are, or who may be tempted to become, "sedum nuts".

A sedum is a sedum is a sedum. Because I say so. Which is as hopeful a definition as may be of this very variable genus. Listen to the botanists; — "Flowers yellow, white, pink red or (rarely) sky-blue; mostly 5-numerous, more rarely 4, 6, 9-numerous; petals connate at the base or free; leaves of various shapes, alternate, opposite or whorled; underground organs variable", etc. Are we any better off?

There are, however, certain generally common features. The leaves are sessile (sometimes petiolate, just to be awkward!) and succulent, or, at least, fleshy. The flowers are borne on an inflorescence, are stellate in appearance, and have five petals, free to the base, and ten stamens. The carpels are prominent and upstanding; they also possess hypogenous scales, which are of great moment to botanists and can be seen with a microscope. Due to the wide variation in habit and foliage the different species are fairly readily identifiable, though some species, as is to be expected, exhibit variation in form according to habitat and environment.

The whole genus may be subdivided into four main Sections — Rhodiolae, Aizoon, Telephium, and *per* Praeger (one can hear his sigh of relief!) "Genuina" — adding (with finality) "Koch". Praeger also has Sections for "Mexicana" and for the annuals and biennials; but there is really no reason why they should not be included in the Genuina, since they share the same root-system and succulent habit of growth.

The genus seems to have been something of a rag-bag, into which was thrown anything similar which did not conveniently fit into some other compartment. Botanists are continually ferreting around in it, drawing out bits which seem to match up, and from them constructing some new genus or sub-genus. The rhodiolae have been the chief target (though the aizoons or telephiums might offer as good a case): and "Rhodiolae" and "Sedums" can often be found hand in hand under the general heading "Sedoideae". Personally, however, I grieve for broken families, and shall bring all under the one roof.

Sedums are confined to the northern hemisphere, and for the most part to the north of the 30th parallel, though in Mexico they extend south to the 15th. Though termed "succulents" and included in the crassulaceae they are by no means desert plants. "Stonecrop" is the old Saxon for "rock-sitter", and to sit on or amongst rocks, — limestone or volcanic — is what they chiefly prefer. There, like the Alpines, they get good drainage, warmth from the sun, and shelter for the roots. Others like sand or gravel, and some ("peculiar sedums"!) grow in wet or shady places.

The whole range, quite naturally, displays considerable modifications adapted to the extremely varied habitats of the different species.

Starting in the east, we find them first in north-east Siberia, — a most unlikely home for a "succulent". Here, of course, they are not succulent, but very prudently deciduous, and somewhat woody. These are the "Aizoons", with flat, dentate leaves and woody roots, which send up shoots and flower during the long summer days, and retire underground during the long winter nights. These are all yellow-flowered. The low-growing *S. kamtschaticum*, *S. middendorffianum*, and *S. hybridum* live here, and the tall fellows, *S. aizoon* and *selskianum*. Oddly, each Section or group seems to have its vagrant member, and *S. hybridum* has wandered as far as the Urals, carefully avoiding the dank plains of the Ob on the way. The quite distinctive *S. ellacombianum* must have been transported even further, for Praeger received cultivated specimens from all over the northern hemisphere, before he named it after his friend, Canon Ellacombe. *S. selskianum* is easily recognizable, owing to the very evident hairiness of its tall, leafy and fleshy stems, growing in an erect cluster, and its hairy leaves. All these are very hardy species, and quite worth growing in the border.

Mingling with the more southerly Aizoons, and extending westwards from N. China and Manchuria, are the tuberous- or carrot-rooted Telephiums, — short ones and tall ones. These are also deciduous, with flat and usually indented leaves, and are frequenters of the lower hills and drier plains, in sandy, gravelly or loamy soils; but, like the Aizoons, they are not really fussy about the soil they grow in. The low-growing species keep more to the east. *SS. sieboldii* and *cauticola* are found in Japan, *SS. cyaneum* and *pluricaule* (very handsome plants) round the Ocholsk Sea, *S. tatarinowii* in N. China, and *S. eversii* as far west as the Hindu Kush. *S. anacamperos*, of the S. W. Alps, is the only European representative. All have a profusion of purplish flowers which appear towards the end of the year, — *S. sieboldii's* as late as October. For this reason, and because they are hardy and easy to grow, they are attractive as rockery or border plants, and are frequently cultivated in Britain.

The taller Telephiums, with stout, erect, fleshy stems, range from Japan right across N. China, S. Siberia and the plains of Russia and Central Europe to France, — where they are said to be best developed. *S. fabaria* is often called the "English sedum". The various species fall into two main groups, those with greenish-white flowers and those with flowers of deep pink or purple like those of their shorter brethren. All are quite easily grown in the herbaceous border, but the greenish-white flowered ones are of no great merit; that is, apart from *S. telephium alboroseum folliis medio-variegatis* — a forbidding name for an attractive plant which has variegated leaves and puts out its white, pink-carpelled flowers in September.

Amongst the pink and purple flowerers are such popular ones as *S. spectabile*, pale green and compact in foliage and a late bloomer, and the horticultural form "Autumn Joy". *S. maximum atropurpureum* has stems and leaves deeply flushed with purple. It is a good contrasting foliage form, but not so vigorous, and I find its leaves inclined to "blotch". One representative of the Telephiums, *S. telephoides*, has somehow found its way into eastern America, where it extends along the Alleghenies as far south as Georgia.

The Rhodiolae have a thick, heavy rootstock, often described as "massive, with tap-roots, branches or branchlets, and with a head or "caudex" from which new stems arise every year, flower, and die down in winter. The common name for the principal representative is "rose-root". Their leaves are also flat, and usually dentate.

It is tempting to speculate that the rhodiolae family had its origin on the "roof of the world", in Tibet, the Himalayas, Yunnan and west China, for the greater number of the species (around 30) are found in these regions and nowhere else. Others grow as far afield as W. Siberia on the east and Turkestan on the west, and *SS. algidum* and *kirilowii* are flanking outriders on both sides — but always among the mountains of Central Asia.

S. roseum (the "rose-root") is a vagabond which must have been thrown out of the family at an early age, for it has traipsed quite round the world, and into the most inhospitable places. With *SS. artica*, *borealis* and *quadrifida* it survives six months of Arctic winter in the tundra of northern Siberia. It travels through Norway, finds a foothold in northern Scotland, and by stepping stones in Iceland and Greenland, (or possibly across the Bering Straits from Kamtchatka) arrives in Alaska; and makes its way down the western mountain chains as far, it seems, as Colorado. It also appears in the Himalayan regions, and is the only Rhodiolae representative in Europe, sunning itself in the much more equable climate of the central European mountains and the Pyrenees. Understandably, it acquires many mutations in its wanderings. In the Old World any unusual form of Rhodiolae is apt to be dismissed as "another form of roseum". Here the flowers are yellow. The American form has a red flower, and is known as *S. integrefolium*, — "King's Crown" and "Queen's Crown" presumably referring to the sex, for *S. roseum* is one of the rare dioecious species.

North America also has its own endemic species, *S. rhodanthum*, with a raceme of pinkish-white flowers and leaves of midgreen, entire or slightly dentate at the apex. Although one reads of this as being quite widespread throughout the Rockies, I myself, despite many enquiries, never succeeded in contacting anyone who had actually seen it there, and eventually obtained it from a friend who was growing it in northern Scotland!

Incidentally, this resembles my experience with one of our few British native species *S. villosum* which is cited in botanical distribution maps by a large number of dots spread over northern England and central Scotland, but which I was unable to obtain from any British source, and eventually received from a friend botanizing in Iceland.

Apart from *S. roseum*, which is a common border plant in British gardens, very few of the rhodiolae are normally in cultivation. Which is rather a pity; since *S. dumulosum*, for instance, with its rather lower growth, light green leaves and cyme of white flowers, and the upright

compact *S. fastigatum* are quite attractive plants. Popular, too, and often grown, is *S. heterodontum*. The foliage of this is small and neat, of an overall purplish hue, and the cymes dense and either red or yellow. It flowers quite early in the year. Unfortunately, being dioecious and with only annual flowering stems, it is not easy to propagate.

All these are border plants. Their common enemy is the slug, which can find safe refuge and plenty of food to hand in a hole in the core of the root.

Allied to the *Rhodiolae* are two species well worth growing, *S. hobsonii* (syn. *S. praegerianum*), with a stocky but shorter rootstock, and *S. primuloides*, whose roots are long and thin. These come from southern Tibet and Yunnan respectively. *S. hobsonii* is at present rare in cultivation, but it seems to set seed quite readily and hopefully will become more available. It is quite unusual in habit, sending out prostrate flowering shoots, as Praeger says "like starfish" — and becoming a cartwheel when the prostrate inflorescences appear. Its little flowers are pink and bell-shaped: and set off against the bright green leaves give the whole plant a dainty appearance. The flowers of *S. primuloides* are also bell-shaped, but white, and sit atop a neat bushy little plant with shiny green leaves packed into close rosettes. This species is more available in Britain. Both are deciduous, but the latter retains its dry stems and leaves. They are not really border plants, and show up best on a scree.

S. populifolium has a special appeal for non-conformists like myself, for it is really the "odd man out" among sedums. For a start, its leaves are uncompromisingly non-sessile, and blatantly display a most obvious stalk. Then, its stems very soon become woody and brittle, the leaves (which resemble poplar leaves) are deciduous, flat, and hardly to be described as "fleshy", and the white flowers have — which is very unusual in sedums — a scent, like that of hawthorne. Since its roots are fibrous it is often included in Section "Genuina", but it little resembles the rest in that Section, or indeed in any other. Needless to say, it has selected one special and limited habitat in the highest and most remote mountains of central Asia. The flowers are indeed five-partite and borne on a rather lax inflorescence; but it is rather surprising that some enterprising botanist has not yet pulled it out of the bag and created a special genus for it all to itself. Since it is easy to grow and distinctive in appearance it is not uncommon in British gardens. It needs watching however, for if it decides to spread around it can lose that appeal which a smallish clump of open growth will provide.



Fran Lubera, East Hartford, Conn.

I like sempervivums; I like the texture and form of their colorful rosettes; I like the way they huddle and multiply to fill rock crevices; I like the way they can be used to transfer an ugly, bare spot of ground into a place of beauty with the subtle coloring of an exquisite oriental rug.

In *The English Rock Garden*, Farrer writes, "The Houseleeks form a vast family, most minutely differentiated, often confused, and often interbreeding. They are all of easiest culture and the loveliest effect, at least so far as their carpets and masses of rosettes go, — green, blue, violet, ruby; or all shades commingled; or cobwebbed till they are like Ping-Pong balls in cotton wool."

I grew sempervivums primarily for the form and color of the rosettes, as the flowers, for the most part are of a rather dingy color and do not possess much beauty. *S. arachnoideum* and its forms, however, have lovely, twelve rayed, star-like flowers of a lovely glowing, rosy red.

The arachnoides group are amongst the most handsome of the sempervivums. They range in size from tiny half-inch balls to an inch or more, and vary in degree of woolliness. A favorite is *S. arachnoideum* 'Stansfieldii'. In the spring the heavily webbed rosettes turn blood red resembling a now filled, ruby goblet. Other good varieties are *S. a.* 'Rubrum', *S. a.* 'Tomentosum' and *S. a.* 'Deyermitt'. No cobwebbed "semp" you get will fail to please you.

Sempervivum marmoreum (schlehanii) is a variable species with rosettes averaging about three inches, the basal leaves lying flat on the soil. Usually the leaf tip margins are green and the center flushed red, but this can be reversed. *S. m.* var. *rubrifolium (rubicundum)* is outstanding. It has crimson leaves with green tips. More brilliant and with a strong demarcation between the main red of the rosette and the green edge is *S. m. ornatum*. Another variation is *S. m. bruniaefolium* with mahogany brown leaves that turn red in winter.

Another good species is *S. ciliosum* from Bulgaria, with one or two inch rosettes of grey-green incurving leaves, *S. c. borisii* is a hairier version and *S. c.* 'Mali Hat' is a lovely form the color of a ripe plum covered with fuzz.

For bibliography of the genus *Sempervivum*, H. Correvon in *Rock Garden and Alpine Plants* (New York 1930) provides a classification by flower parts. The best monograph is still L. L. Praeger, *An Account of the Sempervivum Group* (London 1932) listing twenty-three species. The most up-to-date treatment is in *Flora Europa* Vol. I (Cambridge 1964). I understand there is work in progress through the Sempervivum Society in England.

The list of sempervivum hybrids is endless. New ones appear yearly. While many are similar to those already on the market, others are outstanding. I can never resist a new "semp" and now have around 150 hybrids. Difficult as it is to choose among them, a sampling of the ones I find the most attractive and distinct are: 'Rubin' — flame red in the spring and early summer; 'Gloriosum', medium size with red and green beautifully combined;

'Walcott's Variety', silvery green with a rose pink center; 'Lavender and Old Lace', a soft apple green at the base, the rest of the rosette a silvery rose-lavender; 'The Oddity from Albidum', tube-like leaves open at the top, tipped red; 'Silverine' a large silver-blue rosette with a tinge of pink at the base; 'Patrician', bright red and green leaves with fringed edges; 'Tristram', slender leaves flushed pinkish-magenta; 'Ohio Burgundy', a merit award winner in England with large rosettes of deep burgundy hairy leaves; and 'Simon Kaianum', small copper red and green, lightly tufted.

Sempervivums reach peak color in spring and early summer. Soils and exposure also play a part in the coloring. Some authorities claim that part shade helps to retain better color. With the exception of the arachnoidea group, whose protection of cobwebs allow them to thrive in rock depressions with little soil, they need a fairly rich, gritty soil, watered in dry weather, to do their best.

(Reprinted from the *Connecticut Plantsman* May 1975)

WILD MAGIC

John P. Osborne, Westport, Conn.

The world of wildflowers is vast and exciting — simple, unorganized and uncluttered — a realm wild and free. A wildflower garden should be a tranquil place, a place to look and listen, a place to spend an hour or so to revitalize the spirit. Anyone contemplating such a garden would do well to bear this in mind.

A wildflower garden need not be difficult to create. It need not contain those rarities so prized by collectors. The simplest wildflower has a jaunty air about it. A vast collection does not necessarily make for an interesting garden. A well-grown bank of hepaticas and *Tiarella cordifolia* is just as handsome as one of *Kalmiopsis leachiana*, and a lot easier to please. Happy gardeners grow those plants that do well for them.

Long ago I came to the conclusion that, above all else, I wanted a garden that I would be comfortable in. So I grow plants that I enjoy and that grow well for me. Some are rare, but most are common enough. Some are a bit demanding, but most, once established, more or less take care of themselves.

My garden is 18 years old and has seen many changes, as plants die out or become too crowded. The fifty or so plants of *Rhododendron yakusimanum* are mature plants, some three feet wide, and while they like growing close together, some need to be moved each year. Certain plants need to be divided every two or three years to insure healthy growth. The primula, sanguinaria, and *Adonis amurensis* beds are three or four times larger than they were only a few years ago.

So my garden is an ever-changing thing. Now and then I feel the urge to improve certain areas, trying to find planting room, always borrowing from Peter to pay Paul.

Plants grown in drifts along a garden path add a sense of discovery and adventure. All sorts of surprises can lie just around a bend. A certain disarray, even a few weeds, all contribute their share to this wild magic.

Roxie Gevjan, Newtown Square, Pa.

We were to spend a week of our vacation in Belgium, and I was very anxious to meet Madame Bardfeld, a fellow ARGS member. After considerable self-debate, I wrote to her expressing this desire. The reply was a most gracious invitation to spend a day in Bellaire, have lunch, and get acquainted. This day proved to be a highlight of our trip.

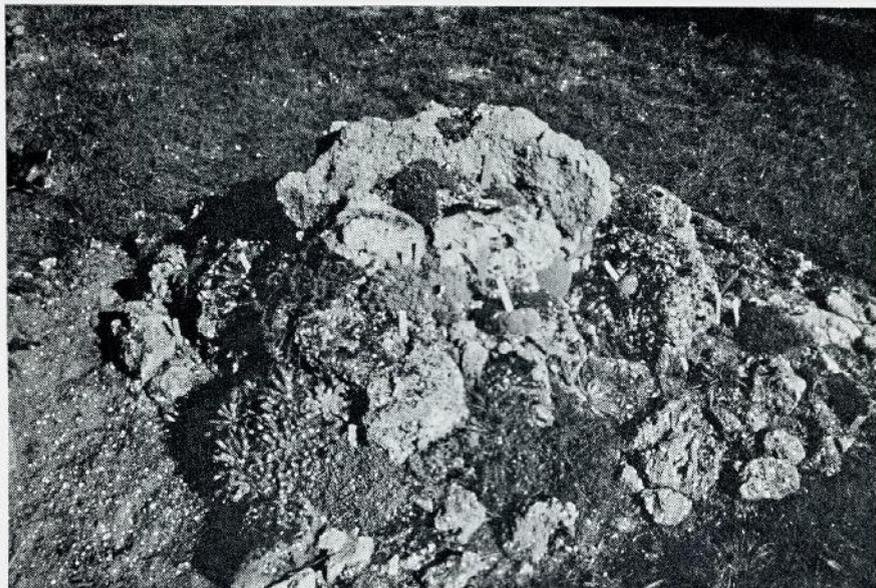
The ride from Brussels to Liege was one hour by train. Mr. Bardfeld would meet us at the station and drive us to Bellaire, a suburb just outside of Liege. Our means of identifying him would be to single out the gentleman carrying an ARGS Bulletin. This seems to be a rather universal procedure. It proved, however, to be quite unnecessary. Rock gardeners and their respective spouses seem to have a natural affinity with each other. The weather was lovely, the countryside pleasant, and the prospects exciting. I couldn't help wondering if the Bardfelds would think we were a bit presumptuous.

At the station, Mr. Bardfeld quickly dispelled all apprehensions. He proved to be a charming, warm person, and put us quickly at ease with his casual and friendly manner. During our short ride to Bellaire he explained that his wife speaks no English and that her garden is small but interesting. Well, Madame Bardfeld's English is better than my French, and her garden is full of treasures. A few hours spent in this garden is merely to gain a 'nodding acquaintance' with it.

Upon arrival at the Bardfeld residence, I figuratively 'fell out of the car' in true gardener's fashion, and began examining the garden. Armen (my husband) gently and tactfully suggested we meet the hostess first. We all laughed, well aware that most garden visitors seem to be programmed alike — plants first, then amenities! This was not my first reprimand of this nature (gardenwise), and I expect that it will not be the last.

Language barriers seem not to exist in a garden, at least not enough to impair communication, though we did occasionally call upon Mr. Bardfeld for translation. Mme. Bardfeld proved to be a very enthusiastic and able plantsman, having created a garden of treasures in several types of naturalistic settings, a project begun about twenty-three years ago. Briefly, the garden is composed of areas for lime-lovers, acid-lovers, and bog plants. There is a section for plants of the Pyrenees, a small tufa garden, a scree, a propagation area, an alpine house — not to mention M. Bardfeld's lush vegetable garden.

One of the first plants drawn to my attention was a newcomer to the garden, *Corydalis cashmeriana*, growing in a secluded spot in the protection of an overhanging branch. Not too far away were *Acantholimon venustum*, *A. gramicum*, *Erinacea pungens*, *Potentilla nitida*, and *Linum salsoloides*. Neighboring these were haberlea in variety, including *H. rhodopensis virginalis* (a white form), a selection of saxifragas, *Ceterach officinarum*, *Cyclamen neapolitanum*, *C. europeum*, a crested form of *Phyllitis scolopendrium*, *Lithospermum oleifolium*, *Draba bryoides imbricata*, and *Saxifraga primulaize*, and many more. Close by were *Campanula x arvatica*, a hybrid of *C. cochlearifolia* and *C. arvatica*, and what would be, I am sure, the envy of most American gardeners in the eastern states, a large mat of *Helichrysum marginatum*. Many of the lovely plants grown outdoors would be impossible as outdoor



plants in our area except with special coddling. The lime lovers were set in a beautifully created 'natural outcropping' of limestone, hauled from a distance of about twenty miles.

The tufa garden was like a crown, set with a myriad of precious horticultural gems. Among the treasures were *Saxifraga valdensis*, the true form ("C'est vrai," said Mme. Bardfeld, which I with my linguistic prowess understood readily), *Hebe buchani minor*, *Draba bryoides*, *D. stella*, *D. mollissima*, *Gentiana saxosa*, *Townsendia excapa*, *Androsace hedraeantha*, ramondas, again a variety of *Saxifraga*, and, tucked away in a very special spot, the elusive *Jankea heldrechii*, rooted from a rosette sent to Mme. Bardfeld by a friend.

The list of plants is endless in this lovely garden, but I would like to mention two more, *Rhodothamnus chamaecistus*, true form ("C'est vrai," volunteered Mme. Bardfeld) and *Campanula raineri*, which brought forth another "C'est vrai" from our hostess. Both plants are treasures indeed, and both collected from the wild, quite different in appearance from other plants I have seen under the same names. The Bardfelds do a great deal of collecting in the wild and the authenticity of their plants is a strong argument in favor of this type of plant acquisition. Every attempt is made to create the optimum cultural conditions for each plant introduced into this garden. Because of the wet winters characteristic in this area, Mme. Bardfeld finds it necessary to protect the tufa and scree gardens with plastic screens adjusted to keep the rocks dry, yet allow proper air circulation.

Much more could be written on propagation, the Alpine house, the vegetable garden (I suspect I am a frustrated farmer), the scree, and the like, but I must be content to close now, with the hopes of returning someday. This is a garden that should be re-visited to truly savour its delights, for there is what seems to be an endless procession of choice and lovely plants nurtured by choice and lovely people. C'est vrai!



THREE REVIEWS CONCERNING DIAPENSIACEAE

"Variation and Taxonomy of *Pyxidanthera*", Primack and Wyatt, *Brittonia* 27/2, 1975. The pages of our *Bulletin* have from time to time presented speculative words as to the morphological distinctions of the pixy-mosses and to the infrequencies of their occurrences. It is therefore of special interest that an authoritative opinion has appeared, a study by two members of the Department of Botany at Duke University. *Pyxidanthera barbulata* Michx. has been noted by Harchberger (1916) as being responsive in the New Jersey pine barrens to environmental factors, producing a compact and small-leaved plant in dry, open situations. When the second species, *P. brevifolia* Wells 1929 was described it was characterized in being both a lesser plant and having smaller leaves, reported from dry, exposed sandy places southwards from *P. barbulata*, and it was subsequently reduced to a variety of that species by Ahles, 1964.

The present authors have studied a number of populations in the south. In light of their findings, they conclude there is no reason to consider *Pyxidanthera* as consisting of more than a single genotype. The population of a single large sandhill mountain was found to consist of all known variations in response to both cooler, moister places and to drier, exposed situations. They have therefore expressed the opinion that *P. brevifolia* should be considered a later taxonomic synonym of *P. barbulata*, and the southern populations are revealed to be not nearly so infrequent as we are told.

"Notes on the Genus *Galax* (Diapensiaceae)", Ingram *Baileya* v.19, p. 128, 1974. The reasons for name changes may be varied; John Ingram of the Bailey Herbarium of Cornell University warns us that in no case, however, are they today made "at the whims of taxonomists". There have been at least five "original" publications of this as a "new" species, Brummitt of Kew Herbarium has shown (*Taxon* 21, 1972), each of course with its original name. The material on which Linnaeus based his "*Galax aphylla*" actually consisted of two quite dissimilar plants. By the rules enabling the resolving of such consternations, the Linnaean name must now be interpreted as *Nemophila aphylla* (L.) Brummitt. We can rejoice perhaps that our wandflower retains at least the familiar generic name.

The point of Ingram's report is that we must understand that *Galax urceolata* (Poiret) Brummitt is not a second, new species, but our old, familiar friend. (To make this quite clear it is permissible to write it *Galax urceolata* (*aphylla*.)

Diapensia in "Reliquiae Botanicae Himalaicae" Ludlow, *Bulletin of The British Museum (Natural History) Botany*, 1976.

Considerable uncertainty has attended various reports of the *Diapensia* species to be encountered in the Himalaya. Other than the circumpolar *D. lapponica*, the genus appears confined to that vast and rich botanical wonderland where the rivers have gouged south-central Asia into inaccessible chasms.

The species described as *Diapensia wardii* by Evans in 1927 was based on fruiting material taken by Kingdon-Ward in 1924. There was no field observation of the plant in flower, and erroneously, it is now evident, Evans assumed it would have been sessile or nearly so, and that it would, like the other Himalayan members, have no staminodes. Accordingly he ranked the four known species into two sections. The first, called Section Lapponicae, was based on the circumpolar *D. lapponica* and contained the one species. The second, called Section Himalaicae, contained the other three, *D. purpurea*, *D. himalaica* and *D. wardii*.

Frank Ludlow, himself a noted plant hunter of the Himalaya, has here written an accounting of the genus, based on his own first-hand acquaintance with the *Diapensias* and including the observations of other collectors. He concludes that, since the genus consists of but four species which cannot be separated on morphologically geographically conforming bases into two such sections, it is superfluous to attempt their continuance; *D. wardii* will fit into neither.

We may not soon of course have these exquisite sounding Asiatic species for our gardens, though we might wish that a combination of fast jets, greater accessibility into the Asiatic fastness and air-conditioned alpine houses might allow us to one day enjoy them. *Diapensia wardii* is pictured as a loose, mat-forming plant, not a dense cushion, with flowers nodding and on pedicels of some length above the plant, and the color may be rose to rich wine. Sounds scrumptious. Anyone for the Doshong La?

— Roy Davidson

DAPHNE: THE GENUS IN THE WILD AND IN CULTIVATION. By C. D. Brickell and B. Mathew. Color and Black and White Photographs and Drawings by Jarmilla Haldova, Alpine Garden Society, 1976.

It is not often that one sees daphne growing in the ordinary American garden. Occasionally one will see a compact, beautifully grown *D. cneorum* recently purchased at a roadside stand growing in someone's flower border. Its fate is sealed. Within a year or two it will be gone. But now and then one sees a specimen — thriving on neglect — doing beautifully on top of a retaining wall. By pure luck the owner gave the plant what it needed.

A more serious gardener may also grow *D. mezereum* and *D. burkwoodii* 'Somerset' — or possibly *D. genkwa* if it is available. When you see five or six different species or varieties you are in the presence of the advanced gardener.

Lately, it has been gratifying to see *D. arbuscula* in the gardens of our members as well as the eye-catching *D. burkwoodii* 'Carol Mackie' with its striking band of gold edging each leaf. The latter has been popularized and distributed by the Don Smiths.

Daphne: The Genus in the Wild and in Cultivation is what all books devoted to one genus should be. It is thorough, well written, beautifully illustrated, and lastly, it is inspirational. The book will satisfy the scientist and be very useful to the interested amateur. It does not pretend to be a definitive taxonomic study of the genus; it is rather a book for gardeners, and the more useful because of its attention to culture, propagation, diseases and varieties.

Our editor, discussing this book with me, said, "This is what we should be doing in America." I'd like to reassure him that work of this caliber, aimed at the gardener rather than the scientist, is being done here. A good example is the journal *Arnoldia* published by the Arnold Arboretum. Their recent issues on the genus *Cercis* and particularly on the Hamamelidaceae are superb. Richard Jaynes' book on the genus *Kalmia* is also in this class.

Still, this 194 page prize by C. D. Brickell and B. Mathew rises above most treatises about single genera. The AGS has done it again. This book is a must, and the authors should be complimented. I'm going to try to increase my six different *Daphnes* to a dozen.

An appropriate finish is to borrow a sentence from the author's introduction — "Our purpose throughout is to stimulate interest in this most attractive genus which is much less widely grown than the beauty and ease of cultivation of many of its members deserve." — Nickolas Nickou M.D.

GUIDE TO PUBLIC GARDENS, compiled by the Visiting Garden Committee, Garden Club of America, 598 Madison Ave., New York, N.Y. 10022, 1976; 122 pp. paperbound, with Addenda and selected Bibliography; \$3.50; available from The Committee, as above.

The booklet noted above has the virtue of being exactly what it is intended and is purported to be: a succinct, straight-forward compilation of basic data. Of necessity it is limited in scope — the format does not permit otherwise; the compilers, under the aegis of G. C. A., are obviously restricted to those areas of the country within the sphere of the Club's influences. Thus something less than all fifty States find representation. Of this, more later, briefly.

Within the regrettably limited range of this reviewer's experience, the *GUIDE* appears adequately accurate and detailed for its stated purpose. "The knowledgeable and inquisitive gardener" for whom it is designed should be able to find his way readily to many, many gardens within much of the 'lower 48' and Hawaii.

To quote from the *Foreword*, "it lists alphabetically by states . . . outstanding arboreta, botanic gardens, parks and gardens of historic houses. It gives a brief description of the gardens, their locations, hours, and if there is an admission charge." All of this for the benefit not merely of Garden Club Members, "but also for our many gardening friends and associates here and abroad." (A pity this *GUIDE* was not available last year to help us and our overseas visitors prepare for the Seattle Conference). Random samplings show, for instance, 13 entries for Alabama, 32 for New Jersey,

20 for Illinois, 14 for Oregon. The following entry is perhaps characteristic: "Brooks Memorial Arboretum in Watoga State Park (West Virginia), *East of US 219*. 400 acres. Wildflower Pilgrimage mid-May. Daily." No wasted words, concise, specific, clear.

The compiling Committee's restricted sphere of operations within the confines of G. C. A. "zones" makes unfortunately inevitable the one glaring deficiency in the coverage offered by the *GUIDE*: as noted above, not all the States find representation therein. The majority of the omissions embrace much of our most impressive scenic real estate — many of our National Parks, National Monuments, etc. In such a compilation it would seem that these merit some mention, even though they fall outside the boundaries of the Club's corporate interests.

This does not detract from what is presented. There is much to stimulate interest, to prompt enquiry, and to enrich the "inquisitive" and the "knowledgeable," whether he be rock gardener, rosarian, dahlia specialist, or — even — a vacationing non-gardener interested in the rich fabric of our land. The data offered lead to a variety of physical settings, to a wide spectrum of intellectual contexts, and to a multitude of spiritual milieus that enhance our total national scene. If in doing one's "homework" in preparation for his travels, the *GUIDE* leads to new discoveries or to a broader comprehension of our land, it will have richly justified the compilers' research and editorial labors to gather and assemble in orderly fashion this substantial mass of information. For the inquiring traveller, it should prove well worth the modest (pocket-sized) space required in his library and luggage. Bon Voyage!

M.S.M.

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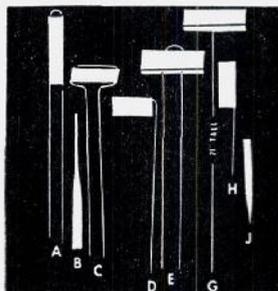
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