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AMERICAN

ROCK GARDEN SOCIETY

C. R. Worth, Editor

Vol. 15 April, 1957 No. 2

STONES TO BEGIN WITH...

J. P. Zollinger, *Brooklyn, N. Y.*

Being a beginner, now in the fifth year of my novitiate, I have nautrally given considerable thought to what may properly be called the beginner's own province, namely, the stony side of the rock garden. This has occasionally proved a regular obsession, so much so that I can close my eyes and imagine all kinds of rock gardens consisting of nothing but rocks. In case such a thing should prove shocking to some of our more botanically minded members, let me remind them that an ancient Greek, could he come to life again, would be no less shocked to discover that our age, in looking at a Greek statue or temple, does in no way miss the gaudy colors with which the Greeks themselves daubed them. To us of this day the stone work alone is perfect in itself and anything added to it could only spoil it. And then, too, Nature herself has on a monumental scale provided some outstanding "rock gardens" which are nothing but rocks. Think of Bryce Canyon, for example.

Far be it from me, though, to advocate a new dispensation of stony self-sufficiency. To do so would be contrary to the principle of self-preservation—in more than one regard. Certainly one is less liable to contract cardiac and sacroiliac trouble transplanting, say, a pin cushion of *Houstonia coerulea* than he is transplanting ton-size rocks singlehanded.

Yet again, in any rock garden worthy of the name the rocks come first. The rock work is fundamental. But it is exactly in these fundamentals that the rock garden literature is generally of little help to the beginner, even if he is fortunate enough to have access to it. By and large the literature confines itself to the treatment of rocks as mere garden accessories, at best as environmental factors providing shade to plants, insuring a cool root run, serving as a reservoir of moisture, etc. This, in my view, is as unsatisfactory as would be a botany text confined to the geological angle.

An exception, so far as I can judge, is Henry T. Skinner's pamphlet "The Rock Garden" (Cornell Extension Bulletin 403), which the directors of the ARGS recently had the bright idea to present to every new member. The new departure here is that rocks and the appearance of rocks on the earth's surface are treated, as they should be, primarily as a geological matter, as something much

older and more basic than the plants themselves. The clear and important distinction is here made between the ledge formation and the boulder field. This was new to me too when I first stumbled upon Skinner. With certain qualifications, of which I shall speak presently, I would unhesitatingly recommend Skinner's pamphlet as the very best counsel that can be given to the prospective rock gardener aspiring to more than a haphazard collection of expatriate alpines among equally luckless exiled stones.

Now as to my qualifications. These are that the prospective beginner have at his disposal a piece of ground that is (1) either strictly a ledge formation or (2) a boulder field pure and unadulterated, or that (3) he have a completely free hand to imitate either.

To this I now must add that personally I was rather glad that I discovered Skinner's text only in my second year of rock gardening, when the main stony features of my rock garden were already established. Skinner presents the principles of rock garden construction and the reasons for his categories so lucidly and so authoritatively—he might well have completely discouraged me. He might have deepened a slight dilemma to a real crisis. The reason is that I was raised in an atmosphere of text-book piety. Had I been in a position to attack the site to be made over into a rock garden with Skinner's text in one hand and pickax or crowbar in the other, the discovery would not have been spared me that the situation I confronted ran counter to the book, was therefore hopeless, in fact taboo.

But does a "naturalistic" rock garden really *have to be* either of the ledge-outcrop type or of the boulder type? Is there no other alternative? Must everything that is neither strict boulder nor strict ledge type be shunned?

By way of answering these questions I would submit that Nature has a manner of not living up to the books. I will try to illustrate this by giving an account of the situation I faced at the very outset.

The Catskill region equivalent of a hillbilly farm which we are attempting to wrench back from the wilderness and into which we try to introduce a few civilized notions of living rests on a bedrock of blue-grey sandstone. Outcroppings therefore have the characteristic ledge form, with cliffs up to thirty feet high (the best of them, unfortunately, way beyond the rock garden). But, like all the country north of New York City, our "farm" is also heavily glaciated land. In spite of all the clean-cut sandstone ledges the grounds are strewn and the soil is spiked with boulders, glacial drift. The native outcrops are hobnobbing with innumerable stone immigrants. According to the book this is, to say the least, an incongruous situation. Fortunately, however, I did not know how "impossible" it was when I started work.

Here, then, was the most heterogeneous collection of rocks: a blue-grey sandstone bedrock, boulders and rubble stones of granite, of gneiss, of flint, even pure quartz crystals and other foreign elements. And then still something else that contradicted the vast majority of horticulturists who have given advice on the construction of rock gardens. Almost to a man they seem to agree that boulders are always of igneous origin, "hardheads," while ledges are supposed to be always of the softer limestone, sandstone or slate. At least I am under the impression that it is part of established horticultural dogma that the glaciers which transported the boulders were endowed with selective powers and that they screened out everything that was not of an igneous nature. Now I happen to be fairly familiar with glaciers but have never noticed any such discriminatory tendency among them. Glacial drift and glacial dumps (moraines) can comprise just about every kind of stone there is — within the region, that is, through which the glacier travels.

J. P. Zollinger

Size and raw material for the rock garden:
A medley of ledge fragments and boulders.

To me, therefore, it was quite natural and a matter of course to find among the petrological litter on my prospective rock garden site not only boulders of granite and gneiss and similar hard kinds, but also boulders of non-native sandstone, red, brown, whitish, yellow, and sandstone chunks full of petrefacts which I have never noticed in the local ledges. Some of these "foreign" sandstones apparently had piggy-backed on the glacier for only short distances and I could easily guess their points of origin. Among these glacial imports there was also a good deal of tufa, possibly come down from the Mohawk Valley where it is said to abound.

I will confess that, after I had cut the poor stump growth on the slope, uprooted the brush and the jungle of weeds and taken a first close look at the raw material on hand, I became aware that the construction of the rock skeleton for an alpine garden was not going to be unmitigated fun. But, ignorant of any authority on the subject as I was, I failed to realize that, in accepting this medley I was going to fly straight in the face of some kind of orthodoxy. Nevertheless, ignorance did not paralyze my impulse, while too much booklore of the wrong sort might have killed it.

Fortunately this was not the first time I scrutinized a piece of undeveloped real estate. The scenic aspects of nature have always fascinated me. And so, in the dilemma presented by the stony salmagundi on and in the ground, a variety of memories soon came to my rescue. I remembered, for one thing, the Grand Canyon of the Colorado River with its heterogeneous strata. In my mind I saw, way down in the bottom of it, screes and talons composed of a piebald rubble but with at least a few saxatile plants growing there, happily unconcerned with this heterogeneity. And I thought of the Matterhorn about the lower slopes of which I have wandered, again and again amazed at the great variety of rock often to be found within a few square yards. There, too, alpines flourished happily and did not mind the petrological mix-up all around them.

All this, quite apart from the sheer physical impossibility of screening out the glacial imports from the native ledges on the site, prompted me to follow the wisest advice I had till then come across, namely, to "use what you have." In addition, the very hodgepodge of stones of different origin suggested that, after all, few notable gardens were botanically parochial, so why should any one be geologically parochial? Today I would ask: What particular virtue is there in being sworn to geological purism and to botanical promiscuity?

At the time of which I am writing, however, I did not have to choose between the one or the other type of rock garden, because I was still unaware of any rigid classication. But I did have to decide whether I wanted a rock garden or not. And if I wanted one I had no choice but to leave the site what it basically was. The name for what it was I learned a year or two later. It is a bastard, a hybrid (theoretically illegitimate) between two mutually exclusive categories, the ledge type and the boulder type of rock garden.

This discovery did not greatly disturb me. Not unlike Molière's Monsieur Jourdin (who, you may remember, was delighted to learn that what he had been speaking all his life was prose), I could still appreciate this little addition to my classificatory knowledge. But I was even more pleased to be able to tell myself that by combining two apparently opposite principles I had not violated either, no matter what the book said. I am still of this opinion and I could probably call upon the largest part of our American Northeast to be witness for me. The glaciers were great topographical hybridizers and the results cannot be ignored.

This does not mean, of course, that we have to accept all the hybrids. Discretion (call it inborn aesthetic sense if you like) here is the saving grace. Thus I had instinctively refrained from lining up round boulders to simulate a ledge, nor had I stuck flat ledge fragments into the ground on end, tombstone fashion. Discretion had also meant a degree of color censorship. All boulders that collided too obviously with the color and texture of the local ledges were weeded out, especially near-white and eye-catching granites and flints. Also excluded on this ground was all tufa, of which there would have been enough for a small separate rockery. Though its porosity makes it an ideal stone for rock garden purposes, it looked too bizarre to harmonize with my other material. (Some day it will prove useful in buried positions to give a foothold to delicate alpines). I did make use, however, of some glacial imports differing in color from the local ledge stone, so long as they were of interesting form and could stand their ground as "specimens." If they were sandstone of a very light color, a rubbing down with a handful of weeds and soil toned down their reflective power. And though the procedure in some cases had to be repeated, stones given such an artificial patina receded nicely into their places and acquired a naturally weathered look much sooner than they would have otherwise. Red glacial sandstone imports were seldom a problem as most of them were well weathered, moss and lichen covered and thus very discreet. Even so, they were never incorporated into built-up ledges but frankly treated for what they were: erratic specimens. The slight color variation they introduce into the rock pattern, far from being disturbing, is quite pleasing.

Very large roundish boulders, or boulders otherwise too uninteresting to be treated as "specimens" and whose removal would have proved difficult and costly, were half, or more than half, buried and may gradually be covered by prostrate evergreens. Others, already deeply buried in the ground and covered with lichens, could be left just where they were.

The main shortcoming of the site was that for the area involved, approximately 3000 square feet, there were not nearly enough truly large rocks. Only one single short ledge fragment in the slope was outstanding with its vertical,

J. P. Zollinger

Work in progress. The big rock at lower right is of "foreign" sandstone, probably brought in by the last arctic glacier, and is used to emphasize a strategic spot, the beginning of steps.

J. P. Zollinger

Raw material for rock composition: a big ledge fragment being excavated in sections.

and even overhanging, face of three or four feet. But it was at the very edge of the rock garden area and in that position tended to throw everything out of balance. The remedy called for articial balances to be set up, "counterpoints," the creation of some sort of "dynamic symmetry" or a symmetric equilibrium. All this meant a great deal of rock moving and even rock composition.

Those who have tried it will know what it means to move a rock of only half-ton size with no other equipment than a crowbar and a few pieces of lumber. Uphill transportation is usually out of question (though once or twice I succeeded with the aid of the family car and a pulley. Horizontal shifts tend to degrade into downhill movements, and once a large rock has dropped below the contour on which it is wanted a lot may be spoiled. However, very large rocks, ton-size and larger, can with some experience be moved to lower positions. Thus the most important addition from outside to my raw material was a two-to-three-ton rock originally half buried at the top of the hill, where it was lost to sight. This was excavated, split into five heavy slabs, moved downhill about thirty feet in sections and partly reassembled to furnish a continuation, well inside the rock garden, of that large ledge fragment mentioned above and to connect it with smaller ledge fragments on the same contour.

In other places, however, low dry walls had to substitute for natural ledges. Weathered flat stones were as closely joined as was possible in order to approximate the aspect of a very much split and broken-down ledge. And finally, where balance and other architectural requirements called for large random rocks, an occasional one was frankly composed of up to five irregular pieces so chosen as to make good joints. One of these compositions is hollow and, once the hollow is filled with earth, will offer a home to a number of crevice-loving plants worth featuring.

As for the majority of the erratics in this part natural, part synthetic, ledge pattern, they are quite unobtrusive. Only two large ones have been given "specimen" treatment and one of them always makes me wish I had more of the kind. It is a cabinet specimen and a typical immigrant: a sandstone of a much lighter color than the local variety, basically a cube but with all the corners and edges rubbed off, the whole deeply furrowed and seamed, checker fashion, and fascinatingly weathered. This one, instead of being half buried, was raised from a half buried position and put on full view. But most of the erratics are of moderate size and unobtrusively dot the planting areas in random fashion and in company with the scattering of flat stones suggesting broken-down ledges and used to soften the rigor of the ledge pattern. Thus the ledge formation remains dominant, but discreetly, the boulder pattern is recessive.

Incidentally, I have not only crossed the ledge type of rock garden with the boulder type but also done a little hybridizing between the "naturalistic" and the formal rock garden. This, I was pleased to learn later, is not rated a misdemeanor. In my particuar case it was prompted by the circumstance that the rock garden slope forms the backdrop to a somewhat formal setting (still in the process of construction) near the house. This setting consists of a series of three levels, beginning with a stone terrace raised three steps on the near side and continuing over a lawn terrace to a ramp planted with varieties of *Thymus serpyllum* at the foot of the rock garden slope. The levels are set off from each other by low walls. This wall theme was then taken up again in the center of the base of the slope, not so much on compositional principles as for reasons of sheer expediency. It provided a badly needed opportunity to dispose of more of the all-too-many stones littering the place, above all to inter a lot of useless rubble between the slope and the wall. This three-foot wall is planted with shade-loving wall plants and at both ends leads over into informal rock arrangements, such as

might be found in the mountains at the bottom of a slope. Still nearer the ends of the base line of the slope flights of steps begin. These, also a formal element despite their ruggedness, make the dry wall in the middle feel at home. From here on, up the slope and towards the sides, things rapidly get quite informal and the made landscape blends into the wild woods—or will blend some day, once the planting is completed and the bushes and dwarf evergreens along the borders have attained a certain height.

I could not maintain that what I have achieved even approximates my ideal of a rock garden but I believe I have done what was possible within a given set of circumstances. Even so, the slope looks natural and quite pleasing. And I do think that it demonstrates (though this was, of course, not the intention with which it was built) that a hard and fast line need not be drawn between the ledge type and the boulder type of rockery. In such topographical matters, as in matters botanical, the hybrid potentially can be as good as the best of its ancestors. And since topographical hybridization is almost the rule where the glaciers have been at work, there is no valid reason to taboo it.

However, I would still advise the prospective beginner to study Henry T. Skinner thoroughly, even if this should be interpreted as qualifying my own former qualifications. I do not think that I am contradictory, though. The point is that Skinner's two types, the ledge type and the boulder type, do remain important. Even if the beginner should have to grapple with a site that belongs to neither category, even if circumstances compel him to construct an intermediary type of rock garden, he is still most likely to obtain the best results if he clearly understands the reasons for Skinner's categories and the nature of the two basic types. If both principles are understood they can be combined without seriously risking blunders — as in the old days, when music was still a serene art, the composer had to be sure of his keys before he could dare using two or three different ones in the same work.

REPORT OF THE NORTHWEST UNIT

HELEN MORRIS, *Bellevue, Wash.*

THE NORTHWEST UNIT met on January tenth at the Arboretum Club House. We had a short business meeting, during which we discussed the possibility of having an Alpine Garden at some high spot in the Cascades. The problems of upkeep and depredation might make it impractical. Our program was a talk on "Ferns in the Garden" by Carl English, who has an extensive collection of ferns which he grows from spores. He brought an amazing assortment of specimens from widespread regions. The maidenhairs, for example, were represented by *Adiantum reniforme* from Madiera, *A. affine* from New Zealand, and *A. monochlamys* from Japan, as well as others. We were also shown interesting forms of familiar ferns, such as *Asplenium trichomanes,* var. *incisum.* An interesting plant from our own state, that most of us had never seen, was *Equisetum scirpoides,* about three inches high, and looking like a pot of miniature chives. Some of the deciduous ferns were shown as herbarium specimens, and there were slides of our native ferns in their natural habitats.

In February a program was presented by Mrs. Joseph Daniels. She has recently returned from Pakistan, where her husband's work took them for two years. She told us interesting bits of the history and present day life there, and described a wonderful four-month trip into the Vale of Kashmir, collecting and studying the plant life. She completed the program with slides and examples of native hand craft.

The alpine garden on the Lauteret Pass.

THE ALPINE GARDEN OF THE LAUTERET

MME. LUCIE KOFLER *and* ROBERT RUFFIER-LANCHE
Grenoble, France

(A free translation of the original paper, with authors' notes and corrections.)

SINCE THE ABANDONMENT of la Chanousia, the alpine garden of the Lauteret is the only high alpine garden located in the western Alps. Neglected and pillaged between 1944 and 1948, since 1950 it has been restored bit by bit.

From the administrative viewpoint, the garden and the chalet-laboratory beside it constitute *l'Institut alpin du Lauteret,* which belongs to the Faculte des Sciences of Grenoble, and whose scientific studies are supervised by the university staff of the Botanical Laboratory.

The land belongs to the commune of Villar d'Arène. The building, owned by the Touring Club of France until 1950, was at that time graciously given to the University, which is responsible for the repairs and management of the premises, which were severely damaged following the war.

Located on the Lauteret Pass itself (2100 meters altitude), a hundred meters from the "high road" of the Alps, the Alpine Institute is very readily accessible during good weather. In winter, however, it is generally impossible to keep the road open all the time; the winter of 1953-54 was an exception, because of very light snowfall. Generally, melting snows open the garden in early June, while the first snowstorms which stop work occur about October 10. During the summer, the climate is dry, sunny, and very windy. It is, altogether, less severe than that of la Chanousia, on the Little St. Bernard Pass.

On all sides of the pass, toward l'Oisans as well as toward Briançon, the forest vegetation is represented chiefly by larches on slopes facing north or northeast. But the pass itself is above the limit of existing forests. There are only rare and stunted larches on north slopes sheeted with vacciniums.

The garden is located on rolling ground over a limy or moraine subsoil, exposed in its entirety to the south. The deep limefree soil is covered by a meadow of *Festuca spadicea,* which is mowed more or less frequently. The knolls, with somewhat heavy soil, are inhabited by groups of xerophytic plants (*Sesleria coerulea,* sempervivums, etc.) and in the more or less marshy hollows grow *Carex fusca* and *C. davalliqna,* together with such plants as *Primula farinosa* and *Pinguicula alpina.*

The garden, which covers more than a hectare (about 2.5 acres), is enclosed by an electric fence which is erected every spring and removed in autumn. This type of enclosure is by far the most satisfactory, for more solid fixed fences (metal pickets set in concrete) do not withstand, on the slopes, the pressure of the snow. The electric fence is respected by unscrupulous tourists and large animals. As for marmots, they rarely come to the neighborhood of the pass.

The knolls and hollows offer a diversity of soils and of exposures, permitting the cultivation of alpine plants of varied requirements. The rock outcrops are unfortunately inadequate for the beauty of the garden and for the display of rock-loving plants: there are only a few barely exposed limestone ledges. Means are lacking to bring in sufficiently large rocks, so that we utilize small glacial blocks of crystalline rock found near the garden, and tuff deposited near at hand by a stream coming from triassic terrain.

It would be appropriate to increase the surface of the garden by building these deposits of tuff into mounds. They are still poorly classified and the imprints

that they contain require deeper study; on the other hand, the very beautiful natural flora of these tuffs, with great mats of *Globularia cordifolia, Thymus serpyllum* v. *bernoullianus, Helianthemum grandiflorum,* and *Dryas octopetala,* deserves protection.

The introduction of water into the alpine garden presents another problem. It is traversed by the only brook on the slope, the one responsible for the formation of the tuff. The lime, gypsum, iron salts that it contains make it unsuitable for watering many of the plants. A conduit of drinking water comes from the slopes of the crystalline massif of the Combeynot: but only recently have the channels been repaired so that the water has become available. Until then, raising young plants for the garden without irrigation, in the naturally arid conditions of the Lauteret, explains in part the slowness with which plants are covering the terrain.

In reconstructing the garden, the essentials of the original plan have been followed in general. The only change has been the replacement by rockwork of the part called the "systematic collection," in which were displayed the plants of the western Alps arranged by families, as is done in most botanic gardens. In addition to the unaesthetic appearance, disagreeable in an alpine garden, it was irrational to attempt to cultivate side by side plants closely related systematically, but with quite different ecological requirements. It was futile to exert the effort required for the maintenance of such a collection, and for the replacement of plants that died.

A bit of the meadow of *Festuca spadicea* is preserved in front of the chalet. Here flourish in particular, *Centaurea uniflora, Arnica montana, Campanula barbata, Meum athamanticum.* Doubtless it would have been interesting to leave intact this meadow, in order to observe the gradual modification of its floristic composition if it were left unmowed. But in order to maintain the garden, which is open to the public and is not simply an experimental plot, the meadow must be mowed every year.

The cultivated plants are assembled according to their geographic origin, then, within each group, according to their ecology, habit of growth, and wherever possible, their decorative effect. When the survivors of the old garden are not in the positions assigned in the new arrangement, they have been left undisturbed for the present, for transplanting them would often be fatal, and they adorn the garden while new stocks are being grown on.

The following groups have been established: Lauteret and neighboring regions (Savoy, western Switzerland, Piedmont); the Pyrenees; Spain, Portugal, North Africa; central and eastern Europe; the Caucasus and Asia Minor; Mediterranean lands (southeastern France, Corsica, Italy, Greece); northern Europe and Siberia; the Himalayas, China, and Japan; North America. It has been almost impossible to obtain seeds from the Southern Hemisphere, but we have now about a dozen species from the Andes.

The former head gardener, A. Prevel, seized as hostage for Lauteret and killed in 1944, noted with care the positions of the diverse species, and their behavior. Certain of his notebooks, which have escaped the pillaging, give us precious information.

Because of the mobilization of Prevel, the lack of man-power and other difficulties brought on by the war, there had already been serious loss of plants between 1938 and 1942, especially in the systematic collection and on the outcrops reserved for Himalayan species: the majority of the latter perished, as they are necessarily difficult to cultivate in the dry climate of Lauteret, since the only flora of the Himalayas of which one can secure representatives is that of very humid meadows and woodlands.

The complete abandonment of the garden which followed, between 1944 and 1950, was accompanied by a veritable pillage. Soldiers and mules, then tourists, cows, etc., trampled, grazed, and uprooted the plants. This made a severe but interesting selection of the plants, revealing their capacity for resistance of such severe treatment. Also, the rarest and most decorative species were submitted to another type of selection, for they were dug and carried away by amateur alpine gardeners.

In spite of this last affliction, some statistics are not without value. We give some examples drawn from the systematic collection (western Alps):

Of 19 Oxytropis and Astragulus species present in 1938, 9 survived in 1942 and 2 in 1950 (*O. campestris* (L) DC and *A. sempervirens* Lamk.). For some other genera, the corresponding figures are as follows: Potentilla, 12, 7, 5; Saxifraga, 23, 11, 2; Primula, 7, 3, 2 (*P. hirsuta* All. and *P. viscosa* All.); *Gentiana*, 15, 8, 5; Campanula 9, 7, 2; saxatile species of Achillea, 6, 5, 0; Artemisia, 7, 4, 1 (*A. umbelliformis* Lamk.) Centaurea, 6, 5, 1 (*C. uniflora* L., which is abundant). Among the Gramineae, grown in a somewhat humid location, all the Avenas of the *montana* group have disappeared, as well as the Poas, Festucas, and Agrostis. *Alopecurus gerardi* Vill. has disappeared, but it has, curiously, survived elsewhere in a dry rockery. Carex, in a dry location, have dwindled from 13 to 6, and then to 2 (*C. foetida* All., and *C. curvula* All.) Some plants that one would have expected to survive have also been lost, such as *Allium strictum* Schrad., *Cerastium latifolium* L., and *C. trigynum* Vill. On the other hand, in addition to *Poa alpina* L., which is a weed, certain cultivated plants have become invasive: *Juncus jacquini* L., the Luzulas, *Trifolium badinum* Schreb., *Linaria italica* Trev., *Dryas octopetala* L., and *Campanula thyrsoides* L., which has seeded everywhere on bare earth.

On the rockwork, where the plants benefitted as much as possible from an appropriate environment, we cite:

(1) some of those which died, of species that Prevel regarded as especially vigorous, floriferous, and fertile in the garden;

(2) some of the species that have survived;

(3) the most prosperous among them.

From the French and Italian Alps: (1) *Carex atrata* ssp. *aterrima, Allium strictum, Bulbocodium vernum, Arabis alpina, Trifolium thallii, Astragulus onobrychis, Phyteuma betonicifolium.* (2) *Allium narcissiflorum, Ranunculus seguieri, Primula auricula, Leontopodium alpinum.* (3) Some Luzulas, *Lilium martagon, Brassicella richeri, Anemone baldensis, Rhododendron ferrugineum, Linaria italica, Valeriana saliunca, Saussurea discolor.*

From the Pyrenees: (1) *Papaver pyrenaicum. Cerastium pyrenaicum. Saxifraga muscoides.* (2) *Potentilla alchemilloides, Horminum pyrenaicum, Carduus carlinoides.* (3) *Arenaria purpurascens, Potentilla fruticosa, Erodium manescavi.*

From eastern Europe: (1) *Cerastium tomentosum, Verbascum phoeniceum.* (3) *Pulsatilla halleri* ssp. *slavica, Heliosperma (Silene) alpestre* (invasive).

From the Caucasus and Asia Minor: (1) *Delphineum caucasicum.* (2) *Paeonia wittmanniana.* (3) *Papaver orientale, P. causasicum, Geranium platypetalum.*

From Mediterranean lands (on the steepest rockwork): (1) *Aquilegia discolor, Aubrieta gracilis, Saxifraga lingulata, Scabiosa silenifolia, Erigeron frigidus.* (2) *Potentilla valderia, Linaria hepaticaefolia.* (3) *Iberis sempervirens.*

From arctic regions: (1) *Draba borealis.* (2) *Ligularia sibirica.* (3) *Iris sibirica, Betula nana, Dracocephalum nutans, Papaver nudicaule, Bergenia crassifolia.*

From central and eastern Asia: (2) *Primula denticulata, Androsace sarmentosa, Gerbera anandira.* (3) *Potentilla atrosanguinea.*

From North America: (1) *Penstemon confertus.* (2) *Lupinus polyphyllus.* (3) *Iris setosa, Eriogonum umbellatum, Chrysopsis villosa, Polemonium confertum, Eriophyllum caespitosum, Arnica chamissonis.* The last two species are invasive, and the arnica must be destroyed with chlorate. It is noteworthy that the North American plants, reputedly difficult at low elevations, do extremely well at Lauteret. It seems that the Rocky Mountains must be the mountain range most similar to the Lauteret in climate.

Since 1930, about 3000 species have been brought to the garden. Seeds are sown in their permanent location, when feasible, or more often, in pots kept in a cold greenhouse at Grenoble. The young plants are set in the open air in spring and brought to Lauteret at the beginning of summer. Lack of space at Grenoble makes it necessary to cut short the time the seedlings are grown in the lowland, and only those species of very slow growth spend more than a year there. At the Lauteret, the new arrivals are acclimated for eight days in frames which are covered at night, then are unpotted and set in their permanent positions. In the alpine garden, growth is slow, as we have already mentioned, and such species as *Lupinus polyphyllus,* which flower the year they are sown, at low altitudes, are not likely to bloom at Lauteret until the fourth summer.

The long and meticulous work necessary for the cultivation of alpine plants is considerably augmented by the errors committed by botanical gardens in the nomenclature of plants sent out. For example, a packet labelled *Gentiana costei* contained the seeds of a *Sonchus* sp., another, in place of *Campanula raineri* had a *Hieraceum* sp., which seems to prove that the harvesting of seeds is done by an unqualified person. Certain less egregious errors are even more annoying: one of us who has cultivated iris for twenty years receives, nine times out of ten, seeds of *I. sibirica,* regardless of the species called for; in dealing with rhizomatous iris, one must wait perhaps four years before being able to recognize the error. Similarly, the alliums are almost always *A. senescens,* the campanulas *C. carpatica* or *C. trachelium,* the primulas, the hybrid *P. veris* x *P. grandiflora.* Galium and Carex seem to consist of a single species—actually an undefinable hybrid. It is better not even to mention Rosa, Saxifraga, Artemisia, grasses, etc. It would be desirable to make frequent verifications of names in botanic gardens, where the more vigorous species tend gradually to crowd out the others. The existence of a herbarium of cultivated plants would make redeterminations much easier. It would be advisable, also, to isolate the more indestructible species. We urge that seeds be collected from wild plants, which, however badly determined, are because of their provenance well worth sowing. So far as this concerns us, the harvesting of seeds for exchange is done exclusively from wild plants native to the Lauteret region, growing at an adequate distance from cultivated ones. This will later be extended, with caution, to certain plants cultivated in the garden, and to wild plants of other regions, whose precise origin is known to us.

In order to attack the problems of microendemism and of variability within a species, we have tried, for certain polymorphic species, to procure seeds from the most diverse localities, and to increase the number of individual plants cultivated. For example, we grow *Silene acaulis* from Savoy, the Pyrenees, Piedmont, Austria, the Tatra, Yugoslavia, and Swedish Lapland. Morphological comparisons are thus easily made among living plants grown under the same ecological conditions.

So far there has been no mention of trees. It seems evident that while the Lauteret may be above the actual limit of forests, it is below the possible one. Attempts at reforestation were made at the garden by Professor M. Mirande

about 1920. Only a few specimens remain alive, all of feeble growth (*Pinus cembra, Picea pungens* and *Larix leptolepis* are among the most successful). This lack of success is due in large part to poorly carried-out efforts, lack of manpower and of competent technical personnel; it does not prove that it would be vain to repeat trials of the same type. Recent sowings show that the species likely to succeed are those originating in the nordic countries, or even better, those from high mountains with Mediterranean-type climate. It is clear that these trials should be made on conifers in particular, for they comprise the ultimate zone of forest everywhere, in temperate mountain regions and in the Arctic zone. It would be interesting to try also the pioneers of woody vegetation, sorbus, alder, willows, and especially the birches, as eventual shelter plants. The seeds of the last-named unfortunately lose very quickly their germinative powers, and the only ones which grow are those sent out by such painstaking institutions as the Montreal Botanic Garden.

The various projected studies of which we speak, as well as many others interesting to contemplate for a high-altitude garden, cannot be carried out except over a long period of time, perhaps a very long one. If one considers, in the Alps and elsewhere, the number of alpine gardens which have been started, and abandoned after a few years, the sum of the efforts thus wasted is considerable. Poor locations, difficulty of access, lack of funds, are not the major causes of their brief existence: what happens generally is that when the creator or guiding spirit of such a garden disappears, so does the garden. Furthermore, specialists in the culture of alpine plants are quite rare.

Having so far avoided such an unfortunate end, the garden of the Lauteret seems to have acquired a certain stability. The Alpine Institute, having become an integral part of the University of Grenoble, is assured of a modest but regular budget. Also, the position of Head Gardener, having been made a civil service post, will escape the frequent changes and long periods of vacancy which have been so detrimental in the past.

The Alpine Institute of the Lauteret has made a point of facilitating the stay of pupils of schools of horticulture desiring to put in a period of study there. Also, each year one or two young botanists come there, benefitting from a scholarship set up by the Touring Club of France for research at the Col du Lauteret. Until now poorly equipped, the laboratory is being provided by the National Center of Scientific Research with the most necessary optical instruments.

Finally, certain students of Grenoble, licentiates in the natural sciences, spend time at the Lauteret, familiarizing themselves with the alpine flora.

As to the extent of future research, we hope that the acquisition of land and the increase in the number of regular personnel will permit investigation of the questions of stabilizing slopes subject to landslides, of improving mountain pastures, and of other problems having important practical applications.

Making the Alpine Institute a center of multiple interests, and making it a necessary part of the activities of the University of Grenoble, which has no other botanic garden, perhaps is the best means of assuring for it a permanent existence.

* * * *

The personalities of the Alpine plants have come to engross the attention of their cultivators, and the actual rock of the structure has lost almost all its importance, except as the stage on which the children of the wild hills are to be made play out of their captive life. —FARRER.

AN ALPINE FRAME

KURT BAASCH, *Baldwin, L. I.*

(Reprinted from Gardeners' Chronicle of America, March, 1937)

ALL WHO HAVE BEEN READING English books on rock gardening probably are familiar with what is meant by the term "alpine house." This name is applied to a well-ventilated, unheated greenhouse, as a rule of small size, very successfully used in England for growing alpine plants in pots or pans.

The alpine house permits the control of a good many factors affecting the life and well-being of the plants, and it protects them against the inclement and wet weather of the winters in England. Speaking for Long Island, we have a good deal more sun during the winter months, our temperatures are subject to more drastic fluctuations, and at times the cold is severe. I have no doubt that, with certain modifications, alpine houses could also be used successfully in our climate. Here, however, with the thermometer going to 15° below zero and the possibility of a drop in temperature of 35° in twenty-four hours, a heating system to moderate these extremes might be of advantage. Plunging of the pots in cinders or sand would, undoubtedly, also help protect the fine roots formed against the walls of the pots and make it, at the same time, easier to maintain just the proper degree of moisture in the soil. All alpines should be kept fairly dry during the dormant stage, and the possibility of controlling this factor is one of the principal purposes of the alpine house.

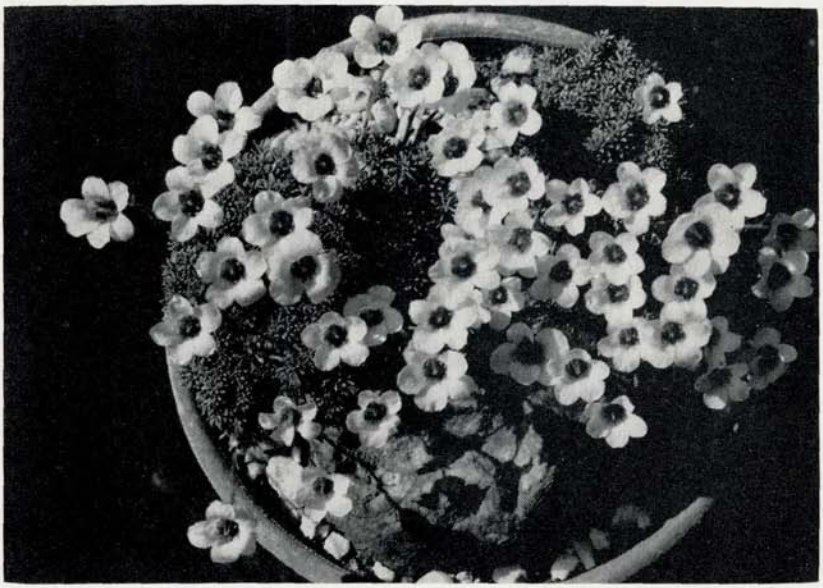
There is a large field for experimentation in this direction, and, once we begin to realize the fascination there is in growing choice alpines in pots under conditions favoring their perfect growth, we shall come to the most intimate acquaintance with our plants. This also will greatly benefit our alpine plant exhibits, for what real enthusiast can make himself dig up a well-established, blooming specimen of a rare alpine and pot it for the purpose of an exhibit? The plant, not having grown in the pot, will rarely look quite right and the disturbance may greatly harm it.

I was started on this most intriguing path of growing alpines in pots by the desire to grow some of the more difficult ones, like the kabschia saxifrages. The problem was to create, if possible, conditions more to their liking, so that they would not just linger, but do their best. While in England the wet winters seem to be the great problem, with us the most trying times are the months of July and August, when either a drought or heavy rainfall, combined with an excessive and humid heat, can raise havoc with our choicest plants. Of course, even many of the difficult alpines can be accommodated and be made to pull through very trying circumstances. Proper location on the north side of a rock, in half shade, or an underground water supply, all may go far to help things along, but the control of these unfavorable conditions during the summer is not easy.

The principal task to be solved, then, was the creation of conditions which would assure the thriving of the plants during these months; and, from the start, I wish to make it clear that I make no claim to be the originator of the ideas which led to the experiments. The ideas as such are not new and it is, perhaps, only a lucky combination of them, applied in a practical way, which has given such gratifying results.

The principles are simple and as follows:

1. A practical way of supplying water to the potted plants, from the bottom of the pots instead of from the top, and a method of maintaining a constantly cooling evaporation from the sides of the pots, without running the danger of having the soil in the pots dry out.



Kurt Baasch

Saxifraga irvingii in bloom.

2. The creation of conditions supplying moist and comparatively cool air to circulate freely around the plants.

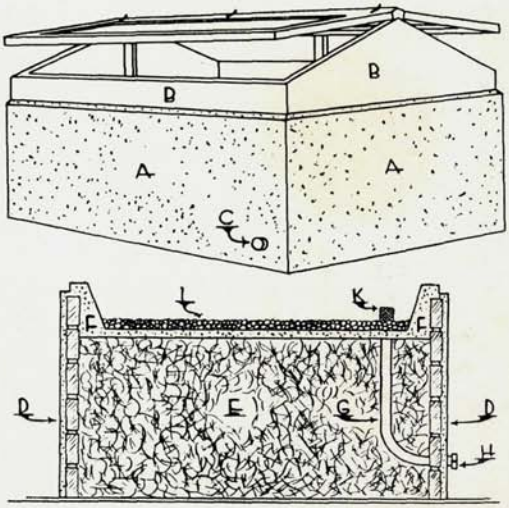
3. The possibility of controlling the amount of sunlight by means of easily applied lattice screens.

To supply these conditions in a simple and practical way, an elevated alpine frame was built, and, once its purpose is understood, minute details for its construction will scarcely be necessary. Of importance are the features which successfully solve the problem of supplying the conditions enumerated, and these can be easily described.

The potted plants are benched in an elevated cement sink, which first is filled with a one to one and a half inch layer of small,—about one-half inch size,—crushed bluestone, as used by contractors. Other kinds of stone or gravel of the same size will do as well. The potted plants stand on top of this layer of stone chippings. The cement sink has a drain in one corner, with a very slight pitch towards it. To prevent the opening of the drain pipe, which is flush with the bottom of the sink, from becoming clogged with the stones or gravel, a small piece of copper mosquito screening is rolled into the shape of a cylinder and inserted at the top of the pipe, with the end of it protruding over the stones so that these cannot be washed into the drain-pipe. A shut-off cock, or a plain stopper, is needed at the other end of the drain-pipe where it comes out of the concrete or brick base on which the elevated cement sink rests.

To protect the plants from rain, a framework of wood, with two sash-lights opening in opposite directions, or an angle-iron frame with lights, has to be constructed over the sink. These lights should give complete protection against rain and when lifted allow free circulation of air over the plants.

My own frame measures 45″ x 60″; the base on which the cement sink rests is about two feet high, and the outside of it was constructed of one single layer



A, cement-coated brick base; B, wooden top-structure with two sash-lights; C, outlet of drain-pipe with stopper; D, cement-coated brick walls; E, cinder filling; F, cement sink; G, drain-pipe; H, outlet of drain-pipe; I, layer of gravel; K, screen cylinder inserted in drain-pipe, protruding over gravel.

of bricks which, to avoid frost action, were covered on the outside with a thin coat of cement. The inside of this brick enclosure was filled with cinders almost to the top of the brick walls, and then the cement sink, approximately five inches deep, with side walls of sufficient thickness to avoid breaking, was built on top of the cinder foundation. The drain-pipe for the sink can best be installed at the time the base for the cement sink is made, so that the outlet of the drain-pipe, with the shut-off cock or stopper at its end, will come out somewhere at the bottom of the base. The upper structure of my frame fits exactly over the outside of the top of the sink, which was constructed with a narrow outside ledge on which the frame rests. In my case, the framework to hold the sash-lights was made of wood, with a ridge-beam running lengthwise over the middle of the frame so that the two sashes are attached with hinges to the ridge-beam, providing, when lifted, an almost level glass roof over the entire frame. The clearing from the top of the layer of the stone chippings to the highest point of the top structure near the ridge-beam amounts to only one and one-half feet. If it is the intention to bring encrusted saxifrages into bloom in the frame, then, of course, sufficient clearance has to be allowed for the tall flowering stalks of some of these plants.

So much for the construction of the frame, and now a few points on its operation. The most convenient way of filling the sink for the watering of the plants is a pipe-line brought up to the frame with an outlet right into the sink. If this is not done, the sink can easily be filled by means of a garden hose or, possibly, even by using large-sized watering cans.

Until the really hot and humid weather begins, I do most of the watering from above, using a fine-spray watering can. But, during spells of humid heat, it is advisable to resort to the flooding of the sink; filling it to two and a half to

Kurt Baasch

Encrusted and kabschia saxifrages in early spring, still in their winter quarters.

three inches above the stone level and leaving the water in it for twenty minutes to half an hour will then take care of keeping the plants well watered.

To provide the circulation of comparatively cool air around the plants and to obtain the cooling effect of evaporation from the outside of the constantly moist spots, the water is not drained completely out of the sink, but its level is kept just below the surface of the layer of stone chippings on which the pots stand. It is a matter of a little practice to find the water level which will keep the surface of the crushed stone platform just sufficiently moist, so that the bottom of the pots in contact with this moisture will continuously absorb some of it. This water level just below the stone surface is maintained all through the warm weather, and only in case of a stretch of cool, dark, and rainy days may it become advisable to drain all the water off.

To provide just the proper amount of moisture in the soil is one of the most important points in the growing of alpines, but in attending to these pleasant duties, one quickly becomes familiar with a good many symptoms indicating this or that, and it is this intimacy with one's plants, when grown in a frame of this type, which is so fascinating.

As far as sunlight is concerned, I have found it necessary to reduce it considerably for most of the alpines with which I have experimented. This includes, mainly, saxifrages of the kabschia, engleria and encrusted groups, ramondias, lewisias, and soldanellas. As soon as the sun becomes warm, lattice screens are kept lying on top of the sash-lights. The screens are made of wood lath, about one and a half inches wide, and spaced one and a half inches apart.

A frame, as described, eliminates certain hard-to-control difficulties encountered when growing alpines during the summer months in the open. There still remains, however, the all-important problem of supplying the proper soil mixtures in which to grow the plants. It would go too far to attempt to go into

this here, as the requirements of the various plants are, naturally, different. It is very important, though, that there be perfect drainage, and the bottom of the pots should contain from one inch to one and a half inches of broken crockery, pea-sized charcoal, or dust-free, small sized, sharp coal cinders. As a rule and with few exceptions, alpines require a lean soil mixture, with plenty of grit. Most of the saxifrages of the groups mentioned are lime lovers, so that crushed limestone should be used freely. In England, alpines are very successfully grown in almost pure stone chippings, with just a slight addition of humus. How far we can go over here, in this direction, has, I believe, not yet been definitely determined; but this, also, is an interesting sphere for experiments and I sincerely hope that we soon may have a good many rock gardeners deriving pleasure from such studies.

Kabschia saxifrages grown in my frame flourished and increased rapidly. During the hottest and most trying summer weather, their foliage remained perfect, healthy-looking, and without a brown spot. The plants bloomed profusely in the spring.

The frame, as mentioned at the beginning of this article, was constructed for use during the warmer months only, and without proper adaptations it would be too cold a structure in which to winter plants. Late in the fall, the sashes are lowered at night, leaving only a small opening, and finally, at the approach of cold weather, the pots and pans are transferred to ordinary cold-frames and sunk in sand.

Growing alpines in this manner is not to replace outdoor rock gardening. An alpine frame of this type is, however, a valuable adjunct to the rock garden. It enables one to increase and propagate many of the rarer plants and, having become more familiar with their requirements, some of the less exacting may then be tried outside.

Our western friends, who at higher elevations are fortunate enough to be able to grow most of the plants mentioned without difficulties, may ask what this is all about. Nothing, perhaps, can quite equal the joy of finding these alpine treasures flourishing in their native habitat, but not all of us can have all of this, and many of us will be well satisfied to be able to accommodate some of these plants here at sea-level. Encouragement will be amply provided by their response. To be able to lift out of the frame a kabschia saxifrage with forty-six perfect blooms on it has been one of my rewards this past spring. Writing this now, in January, with the unseasonable weather we have had here this year, I find some of the plants are already full of buds, and most of them have increased to at least twice the size of what they were last spring.

AETHIONEMA THEODORUM

As MR. HARKNESS has been unable to verify the names of several sorts of seed sent for exchange, it may be advisable for the donors to offer such information as they can. One name under question is that of *Aethionema "theodorum."* Seedlings of this plant were given me by Clarence S. Van Houten, who had raised it from seed obtained, as I recall, from Stuart Boothman. The unbranched plants grow semi-upright to a height of somewhat more than a foot when in bloom, with a spread of at least two feet—decidedly too large for most positions in my rock garden. The large flowers varied among the seedlings from pale pink to a rich deep rose; all the paler-flowered plants were discarded, and seed was saved from the deepest ones only. The plant fits quite well Farrer's description of *A. grandiflorum,* which seems to have been lost to cultivation, and may in fact be that plant under a new name. — C.R.W.

WESTERN PLANTS IN MY GARDEN

IZETTA M. RENTON, *North Bend, Wash.*

AS WINTER DRAGS ON and spring approaches, my thoughts turn more and more to my rock gardens. I have several of these, in all kinds of exposures, with different soils, all on ground sloping at various angles. Among the thousands of plants from all over the world growing here in scree gardens, semi-shade, woodland, and on slopes in full sun are many western plants. Not all of these are alpines: if a plant is reasonably dwarf, non-invasive, and has lovely foliage and flowers, be it from woodland, sage brush or alpine heights, I like to have a try at growing it in my gardens. Note that I placed foliage before flowers, for if a plant does not have beautiful foliage I do not want it. It blooms for only a short while, but the foliage is there for many months of the year.

I should like to tell you of a few of our native plants which I find worth growing, but first it may be advisable to tell something of the conditions under which they grow, and which I did not discuss in my previous article on rhododendrons. Our soil contains quite a bit of sand, and the garden was originally a woodland of fir, hemlock and spruce, along with vine maple and dogwood, so that it was fairly acid. Being still in woods when we came here and built a house, it had lots of leafmold incorporated in the soil. We took out huge stumps and logs, from which we saved lots of rotten material and worked this into the soil.

My scree gardens have been excavated to a depth of eighteen inches, and filled with, first, a layer of coarse rock, next sod turned bottom side up, then a mixture of sand, leafmold, peat and small rock. The top three or four inches consist of shale in rather flat flakes; some of our basalt rock flakes off in flat chips one-half inch across and quite thin, and makes good scree material.

My anemones and woodland plants have extra leafmold added to their planting sites. This mixed into the sandy soil with the leafmold already there makes just the soil they desire. For my cassiopes I make a special soil of peat, sand, and rock chips. I excavate about eighteen inches down and the same across, usually at the foot of a large rock, and fill with the mixture. They love this, and it holds the moisture. I put extra leafmold in the planting sites for my dwarf rhododendrons.

In the three propagating benches in the greenhouse, where we root cuttings, is a mixture of sand and peat, half and half. This has to be changed every year and is incorporated into my rock gardens, using most of it as a mulch, then working it into the soil next spring before adding the new batch. I use large amounts of this in the planting site for gaultherias, and for *Kalmiopsis leachiana,* which I plant in pockets on the north side of a large rock.

There is a little creek running through the rock garden. I manufactured it, building six falls and as many pools, with two large pools, and ending it in the bog garden. Along the little creek I grow gentians, ferns, primroses, etc.

I use lots of well rotted cow manure mixed into the soil, but never use commercial fertilizer in the rock garden. Where no special mention is made of the soil required for a plant, it is grown in the ordinary soil mixture described above.

Of the aconites, I am not sure which one I have: it may be a dwarf form of *A. columbianum,* or possibly even a larkspur. It is small, growing a foot or fifteen inches high with deep blue flowers, not long lived, but very attractive.

Of alliums there are dozens growing in our mountains, but the only one

I have collected is a very dwarf pink from the Wenatchee mountains, which I believe is *A. acuminatum;* I also have *A. nevii.*

I grow several of our own species of anemone, together with others from all over the world. *A. oregana* is one of my favorites, a little fellow whose flowering stems are four to six inches high with a whorl of three leaves. The single flower rising an inch above these I have found in pink, blue, white, reddish pink and purple. I love to plant these in woods soil among the dwarf rhododendrons. A vivid blue one is especially lovely. *A. deltoidea* is a little three-leaved plant from our woodland. My mother loved these and called them wax flowers, which describes them accurately. The waxy white flowers with a green zone and yellow stamens are raised above the foliage and are very showy and beautiful. The little leaves are of a reddish shade. *A. narcissiflora* from Colorado and Wyoming I have not seen, although I have been told that it grows in the Wallowas, where I did collect a very nice white one, but lost it before it became established. I must try it it again some day. *A. pulsatilla occidentalis* is our snow anemone from the high places. It pushes its beautiful white cups filled with golden stamens through the receding snow, before the feathery foliage unfolds. Later it is covered with very attractive silvery seed heads. It likes sun, in gravelly soil to which leafmold has been added.

Among the aquilegias, there is a form which grows here with red and yellow blossoms, *A. formosa* I believe, and a soft pink, also a yellow form in our high mountains. These must be grown in lean soil to keep them dwarf enough for the rock garden. *A. jonesii* from the high Rockies never does much here in the way of bloom. It grows and produces its lovely little silver foliage, and once in a blue moon a flower. I am going to try this in the scree garden, where I grow *A. scopulorum,* also from the Rocky Mountains, a love of a little fellow, which does very well for us. It also has beautiful silvery blue foliage, with long-spurred flowers of a beautiful blue. *A. saximontana* from Colorado, which I believe I grew from seed sent by Mrs. Marriage years ago, is an exquisite little thing which seeds itself all over the scree. The fat little flowers hover like little butterflies over the compact green foliage.

Arcostaphylos uva-ursi, or as we call it, kinnikinnick, is grown in poor gravelly soil in full sun, where it makes a small compact evergreen ground cover which is very attractive. The little waxy urn-shaped flowers are creamy pink, and the fat berries are a bright holly red. In shade it grows laxer and taller.

Asarum caudatum is the only one of the genus which I have. I like this as a ground cover in shade, under the rhododendrons, in soil of leafmold and sand. It has beautiful heart-shaped foliage and cunning little monkey-faced flowers in reddish brown. There is a very lovely form from California which I am trying to secure.

Aster alpigenus, which I collected in the Wallowas, is delightful, with long narrow leaves and big purple flowers with golden centers. This likes the scree here. There are lots of little asters here, but so far I have not collected others.

The calochorti I grow in sunny scree. *C. amabilis,* the golden lantern, has many yellow globe-shaped flowers, grows eight inches high, and is loved by squirrels and mice. *C. albus,* the white lantern, is very attractive, of a soft waxy white. *C. amoenus,* pink, globe flowered, eight inches high, is a dream. All these little fellows came from California and are very hard to obtain now unless one collects them. Among the star tulip calochorti are *C. maweanus,* soft white with purple hairs: *C. monophyllus,* yellow cat's ears from the pine belt of the Sierra Nevada in California; *C. benthamii* (probably synonymous with the preceding), yellow; *C. maweanus roseus,* lilac pink; and last but not least, a little white

species from Goat's Rock in the Cascade Range close to Mt. Rainer. When I was there collecting a few years ago it grew by the acre. I plan to go back for more this year. Which this is I do not know, but it is entrancing.

Caltha biflora, the marsh marigold, is an easy plant here, growing along the edge of the bog garden. It has rounded leaves and white buttercups with a center of yellow stamens, and in our high places blooms as soon as the snow goes.

Calypso bulbosa, the tiny orchid, is a hard one to make happy in the garden. I have seen it by the acre in the wild, and have had it bloom for a couple of years here, and then just put up foliage for a couple of years more, finally disappearing. It was grown in a bed of leafmold and sand at the foot of a huge fir tree.

There are a few good campanulas in our mountains. *C. piperi* from the Olympics, with foliage of glossy green and bright blue flowers, requires here a place in the stone wall, and slugs love it. If one can find a high alpine form of *C. rotundifolia* it will stay low-growing in the scree; on the peaks it grows only a couple of inches high. I have grown *C. lasiocarpa* from Alaska, such a nice little one, but alas the slugs would not let it grow, and finally I gave up trying. I found a form growing in the mountains of the Wenatchee range of the Cascades which I sent to Mr. Senior in Cincinnati and he said it was a new species. It grew in crevices among the rocks. I lost mine and have been unable to go back to the place where I found it.

How I love the little cassiopes, and collect all that I can buy. We have a nice one here, *C. mertensiana,* which grows in broad cushions in the mountains and is covered with beautiful little white bells. It grows for us in the garden, but not as it does in its mountain home. I must try it in a semi-shady scree garden.

Ceanothus, in Oregon, grows in the pine woods in broad mats, but in the garden likes ordinary soil in sun. The only form I grow is *C. prostratus.* The little creeping plants are covered with tiny toothed foliage like little holly leaves and the flowers look like soft blue powder puffs. I collected a pure white form with pale green leaves, which is also very attractive.

Chimaphila I grow along the edge of my woodland garden, where the rock garden and taller woodland plants meet, in leafmold. We call this prince's pine or pipsisswa. It grows by underground runners and puts up six to eight inch stems with glossy green leaves, lanceolate and toothed along the edges. The little waxy pink flowers are carried just above the whorled foliage. It grows well with rhododendrons and gaultherias.

Claytonia, or spring beauty, is a very nice little tuberous-rooted fellow. The foliage resembles that of a lewisia and the flowers are pink or white. I have some deep pink ones which I like very much. They are easy to establish from collected plants in shade, in woodland soil and rocks. We find them with the yellow bells *(Fritillaria pudica)* and *Mertensia longiflora* in early spring over in the sagebrush country of eastern Washington.

Clintonia uniflora I grow along the edge of the woodland. The white flowers, one or two on a six-inch stem above the hairy lanceolate leaves, are followed by nice blue berries.

Coptis, gold thread, is a dainty ground cover. *C. trifoliata* grows as a vine covering the ground with its divided three-lobed leaves and tiny white flowers. It gets its name from the yellow rootstalks. This is one of the very good ground covers for such things as the dwarf rhododendrons and azaleas.

Cornus canadensis is the little bunch-berry or creeping dogwood. It truly does look like a dogwood creeping over mossy logs or along the ground. The flowers are followed by little clustered red berries.

The one western ladyslipper I grow is *Cypripedium montanum*. This is an easy one and increases readily in leafmold and sand. The flowers come three to five on a stem, white slippers with brown ties as we say. I find this easier than the eastern cypripediums here, although I do have *C. acaule* and *C. pubescens*. I have a nice planting of *C. montanum* growing under a huge fir tree and it blooms for weeks. How the camera fans love it!

Dicentra formosa is a pest in my garden, which I am obliged to fight continually. *D. f.* 'Sweetheart' is a white form found about eighteen years ago by Mrs. Brown in Oregon. She sent me a start when she first found it. It is a nice form with pale green foliage and pure white flowers. I have a drift of this along a trail in the woodland garden. It is definitely not invasive, as the pink one is. Along the edge of the scree, at the foot of a large rock, I have a planting of the little *D. uniflora,* only a few inches high, with tiny foliage and soft pink flowers.

Dodecatheons, or bird-bills, are plentiful here in the Northwest, but I grow only two, in semi-shaded scree: *D. campestre,* with pink flowers, and *D. dentatum,* with white ones.

Douglasia dentata from the Wenatchee range is like a saxifrage, with silver grey foliage and deep rose flowers, and makes compact little plants in the scree. So does *D. laevigata,* whose leaves usually have several teeth toward the end. The little flowers are carried on short stems in open umbels, and are dark pink in color. There is a nice form of this from the Columbia River Gorge. *D. montana* is a nice one from the northern Rockies, making tight rosettes with one to three pink flowers on a short stem. It also does well in the scree garden.

In the high Wallowas we found a lovely epilobium, six inches high, with foliage covered with a bluish bloom, and large deep rose flowers like shimmering silk. What this one is, I'm not sure.

Erigerons grow by the legion in our mountains and deserts, but the only ones I grow are *E. linearis,* a violet daisy with yellow center, six inches high, grey foliage; *E. aureus,* a yellow daisy-like flower from high places; and *E. compositus,* a plant from the desert with grey hairy foliage, finely cut, and white or bluish flowers.

Eriophyllum, Oregon sunshine, if given a lean soil will make a very nice plant with divided foliage green above and silver beneath, with large yellow daisies. I find this an ideal plant for full sun.

Eritrichium aretioides grows in the high Wallowas, but we did not find it, and must go back for another look some day soon.

There are many erythroniums in the Northwest, which do well on the edge of woodland in a mixture of rock chips, leafmold and peat. *E. grandiflorum* and *E. parviflorum* grow over a large range in the Cascades; they have butter yellow flowers and unspotted foliage. *E. montanum* is our avalanche lily from Mt. Rainer, white with orange center. It pushes up through the receding snow by the millions. *E. hendersoni,* from southern Oregon, with mottled foliage, has lavender flowers. *E. revolutum Johnsonii* with mottled foliage and pink flowers comes from the coastal mountains of southern Oregon and California. All erythroniums are easy to grow if one can keep squirrels from digging the bulbs.

Fritillarias do well here in ordinary rock garden soil. *F. pudica* is the little yellow one, four inches high, that we collected in eastern Washington. We have also a green checkered one six to eight inches high, whose name is uncertain.

Gaultherias are another love of mine: I have some twenty species, all small dwarf growing kinds. *G. humifusa* is a treasure from the high Cascades where it makes a vine on the ground, with small oval foliage, little pink urn-shaped flowers, and blackish berries. I use these small gaultherias under the dwarf rhododendrons.

(To Be Continued)

A DOUBLE CAMPANULA

GRACE F. BABB, *Portland, Maine*

DO I DARE WRITE ABOUT my sweet double campanula? I've just been out to look again at the new basal growth, to reassure myself that it is well and strong enough for another winter. It is probably *C. petiolata,* the western form of *C. rotundifolia,* or perhaps a hybrid between the two species, which I have been growing for many years. The western form or species has stronger stems and larger leaves than the thread-like stems and tiny leaves of the little harebell. The first double flowers appeared at least ten years ago, and I have seldom been without one, or rarely two, plants since then. They are usually frail and short lived, disappearing after two or three years, but always another seedling has shown up somewhere in the garden. The present plant is the strongest of any, having increased in size and strength over the past three years, showing signs of being truly perennial, although I am tempting fate to say so!

The earliest flowers are usually single, then some will appear with added frills inside, and sooner or later some perfect doubles with two or three rows of petals. The present plant by midsummer had a dozen or more stems of bells, many completely filled with row on row of frilly petals. They were perfectly entrancing, so dainty that none of the disparaging comments on doubles could possibly apply. As the peak of bloom passed, singles and partially double flowers appeared again, with a perfect one only now and then.

I have saved a few seeds, but have never yet found a double flowered plant in my own seedlings. The rest of the seeds I scattered around the plant hoping that others might appear in this apparently satisfactory location. In the spring I shall try to start a few cuttings if the plant is still strong enough.

CHILEAN NOTES – III

CRW

ON THE EVENING OF NOVEMBER 4 we took the train from Vicuña to Rivadavia, only a half-hour ride, in preparation for a very early start into the high country the next morning. When, after some difficulty, we obtained rooms at the hotel, it was found that the one John and I were to share had to be entered through a room already occupied. We protested, but no other room was available, and finally we discovered that by moving a dresser it was possible to go in and out through Rodolfo's room, without disturbing other people. I was intrigued by a bathtub full of dirty water: apparently, in this dry region, water is far too precious to be discarded after one person has bathed in it.

My sleep that night was disturbed by barking dogs, and by bites. Once or twice I arose, turned on the flashlight, and saw dark forms, which I assumed were fleas, dashing in all directions. There was no way of defending myself, so I spent the night itching horribly. Next morning, Rodolfo told us that he had been kept awake by chinchas; this was my first—but not last—encounter with the peculiarly vicious South American bedbug, whose bite can best be described by comparing it to having boiling water poured on one's body. John, as usual, was immune to these pests; later I saw them crawling over him without making any attempt to bite.

At 3:30 the chauffeur aroused us—only John was asleep—and took us to the home of Sr. Raul Maticorina, the road engineer, a very pleasant and likeable young man. After he had served coffee and rolls, we piled into the new Chevrolet camioneta (pickup truck), I between Don Raul and the driver, John and Rodolfo in the box behind, trying to catch a little more sleep. By 4:30 we

were under way, and the headlights turned the rather characteristic little desert town into a spot of glamorous oriental mystery. After this, I could see little but the winding road, which, barely wide enough for one car, wandered along cliffs and steep hillsides, until we reached Huanta, a building or two at an elevation of about 4000 feet. The road, a quite remarkable engineering feat, at times was in the gravelly bed of Rio Turbio, but mostly hewn out of the rock of the mountainsides, often with an outer wall of living rock. The slopes of the mountains came down in a series of overlapping planes, slides of red and yellow rock which extended upward to appalling heights. All was utterly without plant life, until I glimpsed a small clump, far up on a slide, of *Argylia potentilloides* for which I had been watching intently. The truck stopped obligingly, and we scrambled up to get a specimen. After the beautiful coastal species, this was a bitter disappointment, noteworthy only for its digitate leaves, for the yellow trumpets were small and unimpressive; not even my love for the genus (although I had no knowledge, at this time, of the incredibly lovely ones we were to find later) could arouse any enthusiasm. Eighty-five kilometers from Rivadavia the road forked; pointing to the left was a sign, "Baños del Toro, 22 km." We took the right fork, but I long to return to learn how many, and what sort of, baths the bull has, and what may have caused this most unorthodox behavior.

Our road, to Laguna, went through a fairly open but very dry valley in which the only sign of human habitation was a mine near Rio Seco, on slopes as dry as the river itself, and utterly barren. The valley narrowed, crowded between ever steeper slopes and higher cliffs, and a cold wind swept down on us. To the north could be glimpsed the ridges of mighty 18,000 ft. Doña Aña, on whose slopes lie Los Baños del Toro, but even on the southern (shaded) side surprisingly few streaks of snow were visible, in spite of its great altitude. Now we began to climb in earnest, with occasional stops to remove fallen rock from the road, in a series of very short switch-backs, around one of which it was necessary to back the truck. A few shrubs appeared, one of them with profuse inch-long tubular white flowers, a dwarf purple-flowered astragulus, and a very dull phacelia with tiny flowers of pale lavender.

At last we came to the head of the valley, blocked off by a recently constructed dam, behind which a narrow "lake" extended for at most three-quarters of a mile; to what purpose its waters were to be put I cannot recall, but it must have been designed to provide hydro-electric power, for the nearest irrigable land was many miles way. Near the dam itself, at an elevation of over 11,000 feet, were a few cabins. Westward, to our right, and at the head of the valley, snow-streaked slide peaks towered several thousand feet above us, while to the east a high and nearly vertical earthen bluff extended far to the northward. Precious time was wasted (for we had been warned that we must start back in a couple of hours) while breakfast was prepared, eggs which Rodolfo had brought, and a queer soft meat which, we, were assured, was vicuña, the small and precious high-mountain relative of the llama, although Rodolfo later learned that it was actually kid. Then we drove to the head of the reservoir and went exploring. John decided to climb to the snow on the slide peaks, 3000 feet above us, while I assaulted the earth cliff, following a steep little stream on whose banks were great sheets of a rosetted calceolaria, not yet in bud. At the top, I found stretching in front of me a great desolate plain, bounded on the east by snow-streaked cliffs, and sparsely dotted with little patches of low-growing herbage. Years later, while riding at a high elevation in central Utah, I came around a knoll that extended across the narrow ridge, and found before me, half-veiled in the late afternoon mists, a bleak expanse where no plant grew more than an inch or so above the ground. Perhaps the chill I felt as I rode across that dreary expanse was not

brought on entirely by the mists, for on my return some days later, in bright sunlight and with a couple of sheep-herders in view across the flat, I felt again that I had slipped into the wrong space-time frame, and was once again on that lonely Andean paramo. There I wandered around, finding no flower, nor even any plant of interest. Even at that altitude (about 12000 feet) and that early in the season, in our own mountains plants, once the snow had left them, would have been hurrying into bloom. It may well be that no appreciable amount of snow ever falls on these Chilean heights, and that plants lie exposed to the cold until occasional summer rains stir them to life. Yet I could find nothing but tufts of a minute grass and one or two other plants that seemed totally lacking in interest, not even a corpse of any of the marvellous plants which should have been everywhere. Perhaps it had been my misfortune to select a place, such as one occasionally meets in the Rockies, shunned by all the good plants of the region. I looked longingly at the cliffs to the east, but in this treeless region, without human landmarks, could not estimate whether they might be a mile away, as they seemed, or many, and whether it would be worth the effort to walk toward them. My watch settled the matter, and sadly I turned back, wondering why no high peaks had been visible, and whether I might actually have been looking at the main crest of the Andes, just across the boundary in Argentina. John and Rodolfo, who had started to follow me but had soon fallen behind, had already returned to camp. John had found no plants, and had finally decided that the climb was more than he had bargained for. Rodolfo, examinging a slide near the road (which I had snubbed because I could see no plants on it), had discovered a tiny cruckshanksia, with negligible bracts and golden tubes, delightfully vanilla-scented, larger than those of any other species we encountered. This was determined by Ivan Johnson as *C. palma,* as was another plant of utterly different appearance, whereas the Laguna specimen is very similar to that illustrated in Clay as *C. glacialis*. There was a long wait for lunch at the camp — time, I thought regretfully, that could well have been spent in a closer inspection of those fascinating cliffs.

On the return trip I appreciated even more fully the road to Laguna, for once, on serpentine curves barely fifty feet apart, the driver had to slam on his brakes to avoid crashing into the face of the rock. Several stops were made for plants, of which the most interesting was *Calceolaria lepida,* a mat of dryas-like grey-woolly foliage hanging down a cliff, dotted with little yellow pouchflowers: the only good plant that day, but worth the long trip back, if only seed could be obtained. After a pause at Don Raul's home for a glass of beer, we went on to Vicuña, where we spent the next day at the tedious chore of drying specimens, and nursing colds acquired on the Laguna trip.

The following morning, leaving the others to finish the drying, I dashed back to Coquimbo, to replenish our funds at the bank there. The trip, in a gondola, nearly made me seasick—for a gondola, in Chile, is a bus mounted on railroad car wheels, which jolts and sways madly as it dashes over the tracks. A patch of pink alstroemeria grew near the tracks, and a hippeastrum flamed on a rocky slope, while there were other hints that a rich haul of plants could have been made earlier in the season. That evening we reassembled in La Serena, from which we made one more trip, in search of a floral paradise called Quebrada Jardín, reputedly ten kilometers to the north; after 28 barren kilometers we turned back, with little to show for our efforts other than seeds of a tiny withered monocot, and a prostrata nolana with many-lobed flowers of intense blue. There was one other locality on our itinerary, the type locality of many rare species, but Rodolfo insisted that mining operations had torn up the entire hill, and refused to take us there.

Southward again, to Ovalle, with the most attractive stores we had seen since leaving Lima, Peru. On the first morning, we drove about 30 km. to Cerillos, through an irrigated valley, where a couple of times we saw silos of concrete, quite anachronistic in a region where threshing was still done by driving horses over grain scattered on the ground, and plowing by oxen, with (if I remember correctly) a forked stick for plow, on one great estate. At Cerillos, after seeing nothing but withered weeds along the road, we stopped for lunch: the usual soup of meat and potatoes, and brown beans, cooked with small pieces of potato, with a scrap of steak on top. A hog wandered over to our table, had some hot soup poured on it by Rodolfo, and after due consideration decided that its presence was not desired. The afternoon was a series of frustrated attempts to find a few plants for the press: first to a spring where there were a few trees and shrubs that even goats would not eat, then a jaunt of forty kilometers during which we found exactly nothing. On the way back to Ovalle, along an irrigation ditch at the edge of a field, were a few plants of a nice schizanthus, rose-lavender with the top petal yellow, spotted maroon, growing into small almost leafless mounds a foot high and sometimes as much across. With it grew a monocot, probably a conanthera, with a few pale and washy blue-lavender bells only half an inch across but several inches apart on foot-high stems. Nearer town, in a similar situation, was a fine dark blue nolana with crinkled leaves.

(To Be Continued)

COLOR FORMS OF GENTIANA ASCLEPIADEA

CLARENCE L. HAY, *Newbury, N. H.*

IN 1935 MR. MONTAGUE FREE gave me a plant of *Gentiana asclepiadea* which flowered the following year, pure blue. Since then it and its offspring have been seeding themselves up and down the brook in my rock garden, and are all so contented that they have become almost weeds. At a guess I now have about one hundred plants. A large percentage of the seedlings bear pure white flowers with ivory bands, and not a trace of blue. This year for the first time there appeared, in the middle of a big clump of mixed blues and whites, some stalks bearing bicolored blooms, pure white with blue segments or points on the corolla. The effect is very striking.

I have never heard of this happening before. David Wilkie, in his book "Gentians" (first edition, 1936) makes no mention of any bicolor gentians. We are going to try this fall to separate the roots of the bicolor forms from the clump, and take slips and seeds. Time will tell what the result will be, but it would seem to be well worth the effort.

For many years I have had a treasured gentian which appeared as seedlings in a bed of *G. pneumonanthe*. This species is not much more than a biennial and it was dead when the seedlings appeared. They are a deep sapphire blue, flowering longer than almost anything else in the garden, and are much more open than the flowers of *G. pneumonanthe*. The hybrid is a mule, does not set seed, and I do not know its other parent, although I suspect *G. septemfida* which was in bloom at the same time. Kew could not identify a specimen which I sent there.

* * * *

Alpines, being really noble, are the most democratic of plants, and know no distinction of rank or wealth; all that they know and care for are their friends, whether from pithead or palace. —FARRER.

HAROLD G. RUGG

WORD HAS JUST BEEN RECEIVED of the death of Harold Goddard Rugg on February 14 in the Dartmouth College Infirmary. The librarian of the college, he had been for many years a member of our Society, as well as of the British and Scottish ones.

He was a quiet and self-effacing man whose intense interest in, and great knowledge of, rock garden material was not generally realized. He had first-hand acquaintance with high mountains here and abroad; not many years ago he made a pack trip into the wild Wind River Range of Wyoming, and had visited more than once many places in the Alps.

His interest in plants continued to the last, and he had planned a trip abroad to visit gardens there this spring. His own large garden, of which his modesty prevented his writing, contained a wide variety of rare and unusual material, to which he had only last fall made some important additions. He was not a fluent writer, for his letters usually consisted of only a few words; it is a real loss to us that there is no printed record of his very considerable accomplishments in the art of raising difficult plants.

BOOK REVIEWS

Challenge of the Andes. By C. G. Egeler and T. de Booy. 203 pages, 32 plates, 9 text figures. New York: David McKay Co., 1956. $4.50

Of books on the Himalayas, there is a plethora, often distressingly similar; of those on the Andes, there are all too few, mostly old and out of print. Of course there are tourists' contributions to the literature, often no more informative than that of the much publicized American writer of travel books who did not see the spectacular mountains of the Chilean lake region because it happened to be cloudy the day she was there! A book like the one under review is a rare find, and a real treasure.

The authors are young Dutch geologists, both of whom had dreamed of participating in Himalayan exploration, only to be disappointed when the proposed expedition fell through. They then turned their attention to the White Range of the Peruvian Andes, precipitous snow-peaks of which Huascarán is 22,205 ft. high, while twenty-eight other peaks extend above 20,000 ft., offering as great difficulty and challenge to the climber as the Himalayas can, except that of extreme altitude. An American woman, Annie Besant, reported climbing the north (lower) peak of the Huascarán early in the century, and between the world wars three German expeditions made many first ascents in the range, while at least one American party has climbed there in recent years. Yet there are still many peaks which have not been attempted, some of them of almost insuperable difficulty.

The story told here is far different from that of a Himalayan expedition. There was no large party, although the authors were joined by Lionel Terray, a member of the French Expedition which had climbed Annapurna in 1950. They took no elaborate equipment, and relied for support on such natives of the region as could be persuaded to go with them, none of whom had ever been on snow or ice before. Although none of the Peruvians took part in the final ascents, they showed remarkable stamina and courage in helping set up the lower camps.

While waiting for Terray to join them, Egeler and de Booy, accompanied part of the way by Eugenio, a native boy, climbed an unnamed 17,923 ft. peak in the southern part of the range, the first climbing they had done other than in the Alps, and gained some idea of the peculiar problems presented in the Cordillera Blanca—ice-sheeted rocks, and tremendous snow cornices. Then, with

Terray, they conquered the far more difficult 18,737 ft. Nevado Pongos, and encouraged by their success, directed their attention to the Nevado Huantsán, 20,981 ft., the highest unclimbed peak in the range, and "one of the toughest propositions in the Cordillera Blanca." The first camp was established without difficulty, but beyond that the climbing was far more difficult than even Terray's experience had anticipated—formidable ice-walls, extremely steep gradients covered with mushy snow, ice-coated rocks, perilous snow cornices. The attempt to carry the first loads of supplies to Camp 2 required so much time that on the return trip a short-cut was taken, which involved, among other hazards, an overhang which made necessary a rope descent of eighty feet through empty space. Darkness had fallen, but the first two made the descent successfully. DeBooy was last, missed his footing at the bottom, and slid and fell at least three hundred feet, but miraculously was no more than badly shaken up. It was necessary to spend the night with him on the glacier, in bitter cold, before returning to the base camp. After a few days a second attempt was made, which ended by the Europeans and two of their helpers being marooned in a blizzard at 18000 ft. The third effort was successful, in spite of almost insuperable difficulties.

The story is one of high adventure, entrancingly narrated, without heroics, perhaps even with understatement of the hazards encountered. The marvelous photographs give a clear idea of the difficulties encountered, and of the superlative beauty of the peaks, while sketch maps clarify details of the routes taken. Plants, of course, are almost ignored, although it is mentioned that in the upper Carhuascancha valley "the rock strata were covered with red-coloured plants, producing a particularly lovely effect" (perhaps a gentian or nototriche, both of which occur in this range). Brief sketches of the natives, and of their living conditions, as well as of the accessibility of the lower parts of the range (under, say, 16,000 ft.) are of great value to the prospective plant hunter.

This is a book of thrilling adventure, excitingly told, with never one of the dull patches of routine detail that seem inescapable in accounts of Himalayan exploration. Whether one reads it for information or for sheer pleasure, it will remain in the memory as one of the most fascinating accounts of mountain climbing ever put on paper.

* * *

Handbook on Broad-Leaved Evergreens. 92 pages, profusely illustrated. New York: Brooklyn Botanic Garden, 1956. $1.00

The series of handbooks on special topics is continued with a subject of particular interest to the rock gardener, who finds that evergreens, especially broad-leaved types, are indispensable for the rock garden, and for its background. Unfortunately, evergreens are somewhat expensive, so that the average gardener is somewhat reluctant to invest heavily in what may be merely an unsuccessful experiment.

Here are described thirty of the best broad-leaved evergreens, followed by lists of species suited to various parts of the country, together with information concerning their needs and adaptability. An all too brief list of kinds suitable for the rock garden is given, unfortunately without adequate comment on the needs of some rather difficult species. Box, holly, rhododendrons, receive attention in special articles, as do sasanqua and other camellias, not often regarded as garden material even around Washington. There are two articles on propagation, containing much-needed information. Perhaps for gardeners from New Jersey northward, a list of evergreens grown at the Morton Arboretum, where conditions are rather more trying than those of central New York, will be especially informative.

As usual in this series, the book is handsomely illustrated. Both text and photographs should offer much encouragement for the wider use of some of the most beautiful of all plant material.

SALMAGUNDI

THE FIRST HARBINGERS OF SPRING ARE, in this land of long winters, the seed exchange lists. In late November or early December we have our preview of the contributions of our own members, when the Director of the Seed Exchange sends the copy of the list for forwarding to the printer; as we check, and sometimes add the names of late arrivals, we make our first notes of what we desire, perhaps six weeks before other members have a chance to make selections. But the Director plays no favorites: only when our name comes up in the list of contributors are our requests considered (though we sometimes hope that he pays special attention to our pleas for a pinch, just a few seeds, of some particularly coveted treasure). Before the proofs are back from the printer, we have received the list of the Royal Horticultural Society, made up mostly of rather familiar items, but with here and there an occasional rarity. By the first of the year we are engrossed in the tantalizing names found in the lists of the Alpine Garden Society, the Scottish Rock Garden Club, gardening friends abroad, botanical gardens, and our two or three favorite seedsmen. Then follows the painful problem of deciding which are the most-desired of the twenty or twenty-five kinds we may select from the first two lists, whether to request some long-sought delight from both, or whether to gamble on receiving it if we ask for it only once. Some questions are settled by ordering a species from a dealer, but there is always the chance that his supply may be exhausted; should one of our precious exchange choices be used to make more certain that the seed will come to us?

These are happy hours of choice, but even happier ones are those when the seeds arrive, often in packets bearing only numbers, so that the seed lists must be found again, and the gems identified. It is marvellous that the directors can satisfy so many of our wants, for our selections are usually of the rarest kinds, of which the seed supply must be very limited, and the demand great. This year we seem to have been even more than usually fortunate, for almost all the species which we most craved are now safely in our seed box, waiting to be sown. The task of the Seed Directors is a long and tedious one, a labor of love. Along with a little disappointment they bring great pleasure to many gardeners, and they make perhaps the greatest of all contributions to the success of the societies they serve.

* * *

Perhaps some readers noted, in the list of regional chairmen in the October BULLETIN, a new name, marking the revival of the long inactive Southeastern Unit. Ralph W. Bennett is already known to many of us, both as president of the American Penstemon Society and as a contributor to the BULLETIN. He has a large rock garden, in a climate that presents unusual problems, and is greatly interested in American native species of all sorts. We wish him success as one of our chairmen.

* * *

It is a pleasure to mention that we have in the East, as of last year, a new nursery of rock garden plants, Sky-Cleft Gardens, of Barre, Vermont. Mr. Allen's 1957 catalog offers many more species than his previous one, a great many good things among them.

* * *

The new location of Mayfair Nurseries is within reasonable driving distance of our home, and we hope to visit them this spring. Moving a houseful of furniture is a bad enough problem; moving a nursery two hundred miles to a new location an appalling one. Mr. Kolaga has promised, when he recovers from the strain and has his new nursery and greenhouses in order, to tell us of his problems and how he solved them.

Belatedly, we should like to call to your attention the October 1955 number of the National Horticultural Magazine. In celebration of the completion of thirty-four successful years, it is made up of a selection of some of the best articles published in earlier issues. Several of these are of particular interest, written by some of our members who are now deceased: Florens De Bevoise on Lewisias, Mrs. G. Latta Clement on Trilliums, Carl Purdy on Erythroniums. This last, by the way, is really valuable, containing information which we had recently been seeking in vain regarding some of the species. It includes a key of all species. E. T. Wherry on Neglected Native Plants, Mary G. Henry on Stewartias, B. Y. Morrison on Calochortus, together with the other articles mentioned, make this number particularly valuable to rock gardeners.

* * *

The Massachusetts Horticultural Society announces that the sixth edition of "Plant Buyer's Guide" will be available late this year. The previous edition, compiled before nurseries had recuperated from the effects of the war, has long been out of date: many of the nurseries it lists have passed out of existence, others have changed their policies completely, and a great many plants of which a small stock was available at that time are no longer propagated.

It is expected that the new edition will list more than twice as many names, and sources, of plant species, hybrids, and varieties as the previous one. It will be interesting to see how many plants, woody ones especially, which seem impossible to procure at present, are actually gone from the trade, and how many turn up in some nursery which may have been overlooked when making inquiries.

* * *

"Challenge of the Andes," reviewed in this number, deals with a region where it has long been our desire to collect seeds. Until recently very remote, approached only by sea from Lima, and then a long and difficult trip by truck or mule over high mountains, it now is within a day's drive of Lima. Exactly what treasures may be found there can only be surmised; Weberbauer mentions as characteristic plants *Nototriche coccinea, Calceolaria weberbaurei, Gentiana weberbaurei* and *G. tristicha,* any one of them worth the trip. Hunting them should make a pleasant summer's outing for some of our more active members.

* * *

Those of you who followed in detail Will Ingwersen's long exposition of the joys of Veronica, and still cannot decide which ones are in your garden, will be relieved to learn that Gordon P. De Wolf, in the December 1956 number of Baileya, offers a key to all species known to be in cultivation in this country.

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Mr. Hamblin's article on lilies arouses our curiousity regarding the attitude of other members toward the use of lilies in the rock garden. In spite of the pages devoted to this genus by Farrer and Clay, we can recall almost no mention of their use elsewhere in the literature; catalogs of rock plants likewise shun them, although years ago Stuart Boothman listed 'Kikak,' presumably one of the many *L. umbellatum* clones, as suitable for the rock garden.

Our own feeling is that the size of the flower, if not the height of the plant, bars their use in the rock garden itself, for the scale of bloom is not in keeping with that of the other plants grown there. Only *L. duchartrei (farreri)* and the newly discovered *L. papilliferum* are, in our opinion, appropriate to the rock garden itself—provided one can grow them! We are all in favor, though, of using lilies as background plants, except *L. candidum,* which has too much of an aura of sanctimonious self-satisfaction to be tolerable in such a situation.

Having recorded our disapproval, it is only fair to add that there is a lily in our rock garden, right at the base of the slope where dwell the daphnes and Euro-

pean primulas. It is a volunteer seedling of *L. tsingtauense,* and how it ever came there is a mystery, for when it first appeared our older plants had not yet flowered, and it seems highly improbable that a stray seed could have blown from the potting shed, detoured alpine house and lath house, and landed there; further, it is at least two years younger than the other bulbs of this species. As it is fairly uncommon, and obviously happy, it will be left there, though it must find its position most uncomfortable; the top of the bulb is above the surface of the soil, presumably because a rock just below prevents its roots from pulling it down to the proper depth.

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