BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

Vol. 6 November-December, 1948 No. 6

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

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Dorothy Ebel Hansell, Editor

VOL. 6 November-December, 1948 No. 6

EPIMEDIUM AND VANCOUVERIA

HAROLD EPSTEIN, Larchmont, New York

IT IS perplexing why certain races of herbaceous plants do not become more popular, particularly when their good attributes have been known for scores of years. Today, more than ever before, dependable (rather than neglectable, as they are often referred to) plants are required in gardens where available maintenance is at a minimum. The ardent gardener may enjoy the challenge of new acquisitions and oft-times has the satisfaction of growing successfully reputedly difficult or "miffy" plants. But a successful gardener requires a quantity of basic plant material that has some degree of permanence—plants which can be depended upon year after year, irrespective of the extremes of the weather and the vagaries of the elements.

While, at times, we may become critical of some of the high-powered advertising of this age, it may, nevertheless, be the most effective means of thrusting forcefully upon our attention sales features what would otherwise very slowly reach us by ordinary channels. This type of "ballyhoo" may be necessary for popularizing plants that undeservedly have been in the background for many years.

The group of herbaceous perennials to which this introduction specifically alludes are the Epimediums and the closely related American group, the Vancouverias. It is interesting to note that in the occasional references to these plants in the various horticultural texts or periodicals, there is naught but praise for them. Typical of such expressions are those of Reginald Farrer (THE ENGLISH ROCK GARDEN, Vol. 1, Page 327) . . . "plants of *extreme* but *unappreciated* value for quiet, shady corners of the rock garden, where they will form wide masses in time and send up in spring and early summer ten-inch showers, most graceful and lovely, of flowers that suggest a flight of wee and monstrous Columbines of waxy texture, and in any color, from white through gold, to rose and violet. Then, beginning later than these, appear the leaves hardly less beautiful an adornment to summer than the blossoms to spring. For these are a delicious green, much divided into pointed leaflets, and borne on airy, wiry stems."

It is quite evident that the Epimediums have been a neglected race, and that gardeners have not realized their potentialities. Although Epimediums are usually referred to as woodland plants, thriving best in cool shade and sheltered conditions in moist leafmold soil, experience has proved that they are tolerant of a wide variation of conditions. The natural habitat is in woodland or margins of thickets, in temperate hilly or mountainous regions, and they flourish best under similar cultural conditions. Dappled light woodland shade on a north slope produces the most luxuriant growth. But the other extreme of exposure—in the sun on a dry slope—has also proved practical. While the Epimediums are

not true xerophytes, their ability to withstand dry and exposed situations has been surprising. Under such conditions, their foliage has a tendency to dry up during the summer without affecting, however, the perennial nature of the plants. This attribute, therefore, particularly adapts the plants for use as a decorative groundcover on difficult banks, under trees or other problem spots in the garden.

When growing in partial shade in a cool moist soil, the foliage will remain attractive into late fall; and where the climate is not too severe, it will remain practically evergreen. Throughout the New England region, Epimediums are deciduous. But this is not a shortcoming, for the delicate sprays of the young foliage in the spring are very appealing and decorative. In fact, the entire cycle of leaf growth would lend sufficient beauty to grow the plant for its foliage, even if the flowers had no merit.

It is suggested that the dried leaves and stems be allowed to remain on the plants through the winter, acting as a natural light mulch. In the spring, just before new growth commences, the leaves and stems of the previous season should be trimmed off to permit the full effect of the delicate new blossoms and foliage. Do not let this reference to mulching be misleading, for all the Epimediums in cultivation are absolutely hardy and require no coddling. On rare occasions, if in exposed positions, the very early leaf growth and blossoms may be damaged by late frost or drying winds.

The rather generous increase of the Epimediums in the garden permits elaboration in their use, so that varying plant combinations may be attempted. Because of their ability to hold the soil on slopes or in crevices, they prove invaluable in pockets beside stone steps, along paths on an incline, or in shady ledges in the rock garden. They are useful as a neat and attractive low border to a perennial bed, or as a finishing edge or underplanting for Rhododendrons, Azaleas and similar shrubs. And, as already mentioned, they are effective as a groundcover amongst trees and shrubs.

The interplanting of various bulbs between clumps of Epimediums also proves satisfactory. This is particularly practical where the bulbs bloom prior to the Epimediums, so that the growth of the latter gradually hides the ripening foliage of the bulbs. Pleasing combinations can be had with Muscari, early species of Tulips or Narcissi. Another suggested use is in the shade (particularly for an eastern exposure) where they may be planted behind or with the many hybrid Juliae Primroses, which should also be used more freely. A bit of imagination will create dozens of decorative combinations with Epimediums for enlivening the spring garden picture.

Cultural conditions for the successful growth of Epimediums are also variable. While the average garden loam will suffice, the addition of leafmold and some mild fertilizer, such as bonemeal, will enhance the foliage and encourage an abundance of bloom. Even though Epimediums are so tolerant, any extra kindness will greatly assist in their propagation.

As do most herbaceous plants, Epimediums require some attention if they are to prosper. While their creeping rhizomes may spread and produce a compact bed of plants, individual clumps gradually die out in the center, leaving the new growth on the circumference. It is, therefore, recommended that all Epimediums be divided periodically, every two, three or even five years, depending upon the rate of increase. At the time of division, discard the old center of the plant, reducing the clump to

Courtesy: Journal N. Y. Botanic Garden

This illustration (approximately natural size) shows comparison in size and structure between *Epimedium grandiflorum var. normale* and *E. youngianum var. niveum.*

plants consisting of three eyes or rhizomes. Enriching the soil again with leafmold and bonemeal and then replanting are not too laborious a task. Epimediums spread vegetatively by woody interlacing rhizomes which creep horizontally a little below the surface of the soil—the numerous fine branched roots reaching down about six to twelve inches. The rhizomes may be divided easily by hand or carefully cut apart with a sharp knife. The most advantageous times for division are in the spring before growth starts or, preferably, in the early fall so that blossoming is not affected. It is interesting to note that if an Epimedium rhizome bud is dissected in

the autumn, the following season's leaves and flower buds will be revealed, completely formed in miniature.

The propagation of *Epimedium* is known to be accomplished only vegetatively, for in cultivation they rarely produce seeds. A concerted effort by the writer to obtain seeds from his garden or other gardens has been fruitless. In fact, correspondence with growers in England indicates similar conditions there, even when hand pollination has been attempted. It would be extremely interesting to hear from growers of *Epimedium*, if they should ever obtain fertile seeds from any of their plants.

Epimediums may be forced easily in the greenhouse for indoor use, so that decorative plants are available early in March. For this purpose, clumps should be lifted in late fall and potted in a mixture of loam, leaf-mold and sand, so that the rhizomes are slightly below the soil surface. Provisions must be made for keeping them moist and cool (about 40 to 45°) during the dormant period, until growth commences.

Both the cultivated and wild species of *Epimedium* and *Vancouveria* have always been thoroughly confused, even though there have been several attempts to unravel this tangle. The most recent and complete study of the two genera is the monograph by William Thomas Stearn, F.L.S., published in November 1938, wherein a revision of the group is presented. In this paper, Stearn recognizes three species of *Vancouveria* and twenty-seven species of *Epimedium* (four of the latter treated as sub-species).

Epimedium and *Vancouveria* are treated as separate genera in the Barberry family (*Berberidaceae*). The former is the largest herbaceous genus of the family and has the greatest range of flower color, varying from white and yellow to rose, crimson and violet.

The name *Epimedium* has been traced to the first century A.D., having been referred to by the Greek herbalist, Pedanios Dioscorides of Anazarba, and his Roman contemporary, Pliny the Elder. The etymology of the name *Epimedium* is obscure, although there is a derivation that has been accepted generally—from "epi" upon, akin and the "Medion," a plant said to grow in Media.

Inasmuch as *Epimedium alpinum*, a native of southern Europe, was the only species known to Linnaeus when he was at the gardens at Uppsala, it is now recognized as the type of the generic name. In fact, this was the only species with a recorded specimen until the year 1821, when other species were discovered in Asia Minor. A few years later, von Siebold, amongst his many plant shipments from Japan, included several Epimediums which were outstanding in the genus. Thus, the range of the group was gradually broadened from Europe to eastern and western Asia, with the closely allied genus *Vancouveria* in the western United States. Then, another *Epimedium* was discovered in northern Africa, to be followed by several other species in western and central China.

Although the kinds of *Epimedium* in cultivation are limited, perhaps no more than a dozen available through various nurseries specializing in uncommon plants, it is surprising that so much confusion exists in their nomenclature. The English vernacular name has always been Barrenwort, and it is now the general name for the entire genus, although originally it was applicable only to *Epimedium alpinum*. This name was applied to *Epimedium* by European herbalists in reference to its supposed medicinal properties. In fact, the use of the dried leaves of some *Epimedium* is traced to Chinese druggists as far back as 200 B.C. In Japan, *Epimedium*

is known as "Ikariso," which is derived from ikari or anchor—the long curved spurs of the flower suggesting the four fluked grapnel used as an anchor by Japanese fishing boats. The particular *Epimedium* thus represented is *E. grandiflorum* (*macranthum*).

Epimediums have a rather broad distribution, the locales covering southern Europe, northern Africa, Asia Minor, Caucasus, India, China, Manchuria, far eastern Russia, Korea and Japan. Many of the known species have not yet been brought into cultivation; but from their description, some of them may be superior to those now grown. Of the latter, several are readily obtainable, although little known in gardens.

(To Be Continued)

Footnote: Since this was written, another spring (1948) has elapsed. The various Epimediums in the writer's garden were carefully observed, particularly for any evidence of the formation of seed. As the flowering period progressed, it was evident that this was to be a very unusual season. For some unaccountable reason, some of the Epimediums were forming husky seed pods! This was particularly noted amongst a large planting of *E. grandiflorum* var. Rose Queen at the base of a huge Oak. The site is atop a shallow stone out-crop (usually very dry in summer) facing south. It is one of the most exposed plantings of Epimediums in the garden. These seed pods formed without any attempt at hand pollination. As a precaution, most of the pods were bagged and the seeds harvested as soon as ripe. They were immediately sown in a pan, but up to October showed no evidence of germination. It is likely that they require the cold of winter for spring germination.

CAMPANULA SAXATILIS

ROBERT M. SENIOR, Cincinnati, Ohio

IT IS A PITY that so many beautiful Campanulas are unprocurable in this country. One of these is *C. saxatilis*, found only on the island of Crete. The late president of the Alpine Garden Society of England, Dr. Guiseppi, a great authority on rock plants, in an article which he wrote many years ago, entitled "Plant Hunting in Crete," remarked: "It is a wonderful sight to see these large deep bells of the deepest blue shining in the sun. The plant is a perennial and branches freely from the stalk. . . . Today, I have about a dozen seedlings of what I think is the finest *Campanula* in existence." In fact, several years ago, I was fortunate enough to receive seeds of this plant from Dr. Guiseppi.

Possibly those who have seen this delightful species may not give it quite so high a rating as Dr. Guiseppi. However, my only criticism of his description is that the flowers are not blue, but a rich shade of violet, with a darker line extending down each lobe. The plant is about six inches high, with small crenulate sage-green leaves along the numerous stems. In the photograph, most of the stems are erect, but I have had plants on which a large number of stems were decumbent.

Campanula saxatilis

One characteristic of the plant, as with numerous other Campanulas, is that after the seeds ripen, the flowering stems all wither. At this period, many of the narrowly spathulate basal leaves also disappear, but later new ones spring up, forming almost a rosette.

Up to the present, fearing to lose the plant, I have not attempted to carry it over the winter in the rock garden. In the Fall, I have placed it in the coldframe, with a raised sash. This winter, with a pane of glass over it for protection, I shall try *C. saxatilis* in the garden.

I have a small surplus of fresh seeds, and I have sent these to the Seed Exchange Director, Mrs. Granger. Some day, I hope the recipients of these seeds will report on their success with them.

OBSERVATIONS OF CYPRIPEDIUM ACAULE

E. L. TOTTEN, Ho-ho-kus, New Jersey

I BELIEVE northern Bergen County, New Jersey, enjoys possibly a greater quantity of *Cypripedium acaule* than any section in the East. The largest station I have ever encountered is on a ridge not far from Saddle River. This station is several acres in extent and holds many thousands of the plants. All are pinks of various shades. On an opposite ridge, less than an eighth of a mile distant, is another station not as large but containing many of the *albino* form. Both of these stations and all that I have observed in this locality are forested with our Gray Birch. There seems to be some affinity with these Birch and *C. acaule*, which I have observed for the past fifteen years. Not a half mile from my home is an old abandoned field and orchard, which were probably under cultivation forty years ago. They are now overgrown with Birch, possibly twenty feet tall. In 1934, I discovered a small station of about six plants there. Today, there are four additional stations, some as much as three hundred yards from the first discovery.

I know of one small station growing at the edge of a sand pit in what seems 90% gravel and 10% Birch leafmold. The gravel had been screened from the sand and piled some eight feet high. The plants are near the top of the pile—perfect drainage.

My experience in transplanting *C. acaule* from the wild has been a succession of failures, none remaining alive more than two years in spite of providing them with what I thought were the identical conditions under which they were growing in their native habitat, even to the Gray Birch. My Birch trees are only twelve years old. Possibly when they reach twenty years and the earth beneath them becomes impregnated with Birch leafmold, I may be successful in growing *C. acaule*. Maybe a natural station will spring up there. They have already crept to within two blocks of my garden.

I did succeed in transplanting *Cypripedium acaule* once, six of the albinos into a natural stand of pinks on the opposite ridge mentioned earlier. They have existed there for four years. Shall we call that success or will they succumb in the fifth year? I believe there is some chemical or bacterial action which takes place in the decomposition of the Birch leaves that is essential to the happiness of *C. acaule*. They, of course, are found growing under other conditions, as in our coniferous forests, but apparently not as abundantly as in the stations growing in association with our Birch.

Should you be fearful about the eventual extinction of this flower by the encroachment of civilization—the Empire State and other tall New York City buildings are clearly visible from the stations I have mentioned.

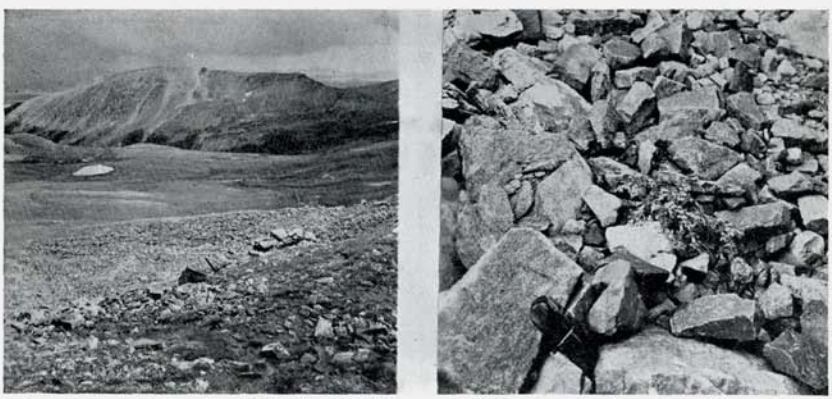
TWO PENSTEMONS

KATHLEEN N. MARRIAGE, Colorado Springs, Colorado

IN THE TYPE locality near Como, Colorado, where Dr. Crandall first found *Penstemon crandalli*, a choice little species, there is wide variation in color of the flowers. To one whizzing past in a car, the general appearance is blue to lavender. On close examination, however, some will be found to be clear sky-blue, some an occasional good white and, once in a long time, a clear rose-pink. Like so many of these western Penstemons, the effect of clarity in color depends on whether the individual flowers are chin-up, so that we look into the open mouth of the trumpet, or are held horizontally, showing us the tube. In many cases, the mouth of the trumpet is a clear color, while the outside of the tube is dull purple.

The angle of chin in *P. crandalli* seems to be determined by the general well-being of the plant. In the wild, they may suffer from extremely dry conditions at the only time they really like moisture—prior to and during bloom season. This gives the whole plant a shrivelled appearance and makes the flowers hang their heads from thirst.

Plants which I have selected at Como in August while in bloom—choosing those of especially good color—have behaved beautifully in the garden, losing that hang-dog look without becoming too lush or overfed. These have retained their good behavior for some four or five years and,



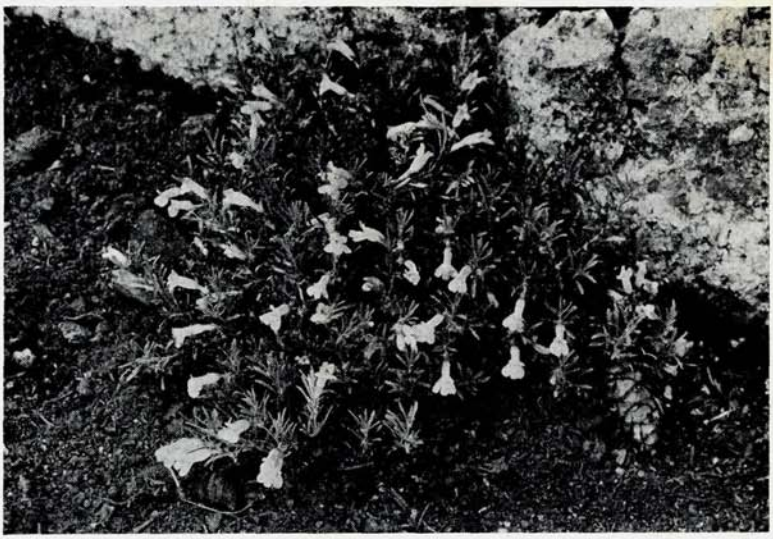
The home of *Penstemon harbouri*

strangely enough, their seeds, as far as I have tried them, have come true to color.

This is an especially satisfactory species for a well-drained sunny rock garden. Its caespitose habit and narrow leaves makes a good-looking plant. The attractive flowers are plentiful, but not vulgarly lavish.

That word "sunny" should, perhaps, be swallowed with a grain of salt, for this charmer grows in its native habitat at 8,000 to 9,000 feet altitude, where sunshine is hot in the day but nights are always cool. It grows well in my garden at 6,000 feet altitude and I have had good reports of it at 2,000 feet. Like most Rocky Mountain Penstemons, it enjoys a chance to dry off when it has finished blooming. It does best in a neutral sandy loam, five of sand to one of loam, where the subsoil is porous gravel. Its color may be muddied-up by a rich or an acid soil.

People ask, "Is *Penstemon harbouri* a myth?" Nobody seems to have seen it or grown it. I have seen it but have not succeeded in growing it.



Lower illustration—*Penstemon crandalli albino*
Upper illustration—*Penstemon crandalli*, showing purple exterior of trumpet.

Probably, it would condescend to survive in the garden when grown from seed, but the difficulty of reaching its high home at seed ripening time has prevented this so far.

P. harbouri grows at 13,000 to 14,000 feet elevation on the most uncomfortable looking boulder fields and rock slides. Last July, when we jeeped over a has-been mining road, then climbed to where there was so little vegetation that the conies were storing for winter every seed in sight, we found this lovely, low-spreading *Penstemon* blooming happily. Some of the flowers were pinky lavender, some blue; the leaves roundish, leathery-looking, like miniatures of the long trailers of *Linnaea americana.*

THE MINIATURE ALPINE GARDEN

LAWRENCE D. HILLS, Wells, Somerset, England

THE MINIATURE rock garden in pan or trough is a branch of alpine gardening that can be carried on even by those who have only a window sill or a bedside table for their hobby. Those who are more fortunate will find that it is one of the best ways of growing small species rarely seen to advantage in the large rock garden, and of getting to know these plants more intimately.

A Japanese garden is strictly formal and in these, bridges, figures, tea houses and glass lakes with gold fish painted on them are not out of place. But in the alpine pan, the blending of such toys with the rugged crags of natural rock formation is as deplorable in an area of a few inches as it is decorative on a larger scale. The alpine house pan of a single species is on a different plane. The true miniature alpine garden is landscape architecture seen through the wrong end of a telescope; and in a world where everything grows daily larger and more unreasonable, there is fascination in thinking oneself down to a scale of about an inch high.

The basis of the garden is the container, and for the smallest garden, from the size of a saucer to about eighteen inches long, the red pottery seed pan, round, oval or square, is ideal. Glazed china, plastics and metal are less suitable, though with plenty of drainage holes they can be used. However, a porous container not only reduces drainage difficulties to a minimum, it cools the sides by evaporation all summer and provides a congenial contact for the roots.

The more strictly high alpine plants one grows, such as small Androsaces and Gentians, the more important is the question of drainage. These plants naturally expect a great deal of water in the summer from melting snow, which drains away very quickly. Not only must the water carry away the carbonic acid excreted by the roots, but as it sinks in the soil, it draws air down after it by suction. And the oxygen is of considerable importance to root action and to bacterial activity, for even the smallest pan garden contains a population of these microscopic friends, many times greater than the human population of the world.

A porous seed pan with one good drainage hole will do, but the more the better, and those who have to use metal, or a cast concrete trough, should aim at one hole every six inches (that is, one hole to every 6″ x 6″ space of bottom surface). Where the trough or pan must stand on a flat surface, it should be supported so that there is a clear space under it, to let the water get away. This is particularly necessary for the indoor pan which must stand in a waterproof tray to avoid damage to furniture.

Large troughs of porous stone need fewer but larger holes, and with a drainage layer of three inches or so of broken flower pots, or even furnace clinkers, they are far easier to keep correctly moist. In England, the primitive stone sinks, now replaced by modern glazed kitchen equipment, are eagerly sought in country builders' yards. These are ideal for alpine growing and are now made by masons especially for miniature gardens. Though the casting of concrete sinks is beyond the scope of this article, it may be mentioned that a mixture of two parts of sand, and one each of gravel, cement and sawdust will make a more porous concrete.

The soil is the next consideration and as so little is required, it can be good. Alpines, though far from gross feeders, need more than Cactus standards of nutrition. Two parts of sifted loam, the fibrous top layer from

under turf, dark with decayed grass roots and with its clay reduced to a crumbly texture by the action of humic acids; and one part each of leaf soil and sand is a standard mixture, with additions to suit the requirements of particular species. It is not possible to get wide variation in soil mixture in a single pan. Lime haters and lime lovers will not grow together, but individual plants can be given extra quantities of any ingredient in their own neighborhood. A starvation diet of two parts of sand to one each of normal soil and crushed mortar should be used where Sedums or Sempervivums are planted. This not only prevents them from monopolizing the pan, but it improves their health and color greatly.

Though the quantity of rock is small, it should be carefully chosen. Ideally, it should be miniatures of the type of rock used in large rock gardens, displaying all the qualities of strata line and weathering, but on a small scale. The pan garden enthusiast develops an eye for fragments and, as a pocket or handbag will hold the most massive, desirable pieces are acquired on visits to nurseries or on climbing expeditions. The best rock is close-grained limestone; sandstone is also good, but hard, brightly colored crystalline rock should be avoided. The best effect is always obtained with the flowers and foliage of alpines contrasting with gray or brown. The beginner, living in a city, would do well to write to a specialist nurseryman or landscape gardener, for both soil and rock. A sufficient quantity can be obtained by mail for one's requirements are in pounds and ounces, not tons.

The best system is to build and plant together, so the materials should be assembled and the pan or trough scrubbed and allowed to dry. Use a strong disinfectant in the water, if the pan or trough is secondhand, to kill the spores of moss. Then the drainage layer of broken flower pots, set concave side downwards, is put over the bottom. A pan two inches deep can spare half an inch; a depth of three inches allows an inch which is better. On top of the drainage layer comes sufficient soil to fill the pan nearly to the rim, firming it with the fingers. Some may have to be removed as the job proceeds. It is the great advantage of pan gardening that one can try out as many schemes as he likes. Few mistakes take more than half an hour to correct.

The guiding principle of construction should be to decide the dip of the strata. Most rock formations, that jut out of a hillside, slope backwards and downwards from their highest point. This line gives unity to the whole garden when built on a large scale, turning it from a haphazard collection of stones into a ravine of solid rock. The pan garden is built on the same principle. But over elaboration on a small scale gives the effect of fussiness, so that comparatively simple outcrops should be built in the smaller gardens. The trough garden can include the ravine type, lesser outcrops and even water, with a cemented channel (the edges of which are covered with flat rocks jutting out over the water) and an electric pump.

The first rocks to go in place should be the largest and finest to represent the weather-resisting nose of the outcrop. The crag, towering perhaps four inches high, should be at one side of a circular pan to allow room for a gentle downward slope. One way is to make the crag from two pieces with plenty of weathered "face" meeting in a "V," planting the joint with Sedums and other crevice plants but alternatively. The front can be done with a single good fragment, met by two others like a "U," with a flat base. The arms of either letter slope backwards and downwards and

the other rocks follow these lines, according to the way the stone breaks and dips in nature.

The soil is packed firmly behind them and the plants worked in as building proceeds. The only difference between pan garden making and normal landscape construction is the ease and speed of trying the rocks in places to find the most effective position. When the garden is completed, a scattering of limestone chippings on all the bare soil surfaces will improve the appearance and conserve moisture, and a thorough watering should be given.

The selection of plants will present no difficulty to the alpine enthusiast. It is a case of using the smallest members of each genus, the Drabas, the Dianthi, the Campanulas and of considering the speed of growth. To release *Arenaria balearica* in a pan garden is fatal. *A. purpurascens* is far more appropriate. Many rapidly growing plants of small size can be maintained by constantly pruning them back as they become overgrown. Others can be used in the small stage and replanted in the open, as they grow too large for the pan garden.

The indoor garden generally needs much more robust plants than in the open for, hard though it may be for the amateur to understand, the smallest alpine treasure is happier frozen solid than in a steam-heated apartment. A selection for the beginner's pan could include: *Armeria caespitosa, Campanula arvatica, Dianthus alpinus, Erigeron uniflorus, Erinus alpinus, Globularia nana, Morisia monantha* (*hypogea*), *Papaver alpinum, Rosa pumila* (pruned hard like any other Rose), *Raoulia australis, Saxifraga irvingii, Sedum dasyphyllum, S. lydium* and *Sempervivum arachnoideum.*

Indoors, the garden needs the maximum amount of light, in the winter particularly. At this season, the pan garden is best either right outside on the windowsill or in an unheated room, and great care is also needed in watering. The rocks should be regarded as a reservoir and water applied only to them, unless the plants are obviously flagging. Watering the pan garden is best carried out with a tea pot. A dinner fork is useful for weeding. A perfume spray, or atomizer, filled with water, is useful if the leaves get dusty. The method of painless dusting for Cacti—the vacuum cleaner held some distance away—should be done with care because of the chippings.

In the summer, because the house is often cooler than the garden, a miniature garden is easier to look after. But it will require considerable quantities of water, not just dripping—a thorough soaking every other day in hot weather. Should the pan become really dry, it should stand in a shallow bath of water for a couple of hours to suck up all it will carry. With good drainage, a soil that contains real food—not the black and sooty exhausted earth from the town garden, and ample light, a pan garden need be little trouble. Though horticultural disaster is as tragic in a garden a foot square as in twenty acres, its cost is so small and so little time is needed to build again, that the pan gardener can afford to learn by his mistakes, and by having the courage to attempt what seems impossible.

The writer is constantly hearing about pan gardeners in the industrial cities of England, who grow plants he would hesitate to recommend on grounds of difficulty. The only rule seems to be that any alpine which is small and neat will flourish, provided the owner is sufficiently enthusiastic. Many gardens are developed by selection of the most satisfactory plants, until only the miniature Conifer remains from the original collection.

These small trees are always effective and should be planted on the lower levels of the pan, not on the highest summit. That would be too windswept for this scale of gardening and, in any event, in the driest part which should be reserved for something that dislikes winter damp. Some gardeners extend their flower display for as long as possible through the year by selection of suitable species. Others make up pans to flower during a given month or season. Some use a pan in the drawing room as a display site for a steady succession of plants from the rock garden, rebuilding at fortnightly intervals.

Apart altogether from the advantage of the alpine pan as a means of learning rock construction, of studying the needs of plants at small cost, and its value as an object lesson in schools, there is sufficient of the child in us to enjoy building a mountain landscape whose peaks we could scale with ropes and ice axes, if only we were the size of this full stop.

I HAVE A SCREE

ELSE M. FRYE, Seattle, Washington

FOR MANY years, I had been wanting a scree, having been completely bewitched by those masters of catalog making, the British. In the margins of their alpine garden catalogs, I frequently found all sorts of illuminating notes and those which indicated experiences that I had not had were "scree or gritty," "sinks," "hot and dry," "rich scree," "moist moraine," "dry ledge," and so on.

Finally I found a spot—the immediate surroundings were not pretty. It was a corner of the nursery plot, two sides of which were retained by unadorned concrete walls of two and a half to three feet. The other two sides were walled off by concrete blocks. This area was roughly six by twenty-one feet and was excavated to a depth of three feet. The gravel was sifted out and replaced in the bottom and more sifted so that the drainage layer was one foot in depth. Over this was laid a layer of straw, about two inches in depth when tramped. The next layer, about two feet deep, was made of three parts pea gravel, two parts coarse sand and one part pure leafmold. It was then settled by copious waterings, several times in the course of a week.

The whole thing fell away from the north to the south, perhaps as much as three inches, which gave a slight feeling of slope. This was carried further by the north wall which was higher. The larger rocks, all limestone, were placed at the north and the smaller brought to the south end. I had a lot of fun placing them—this was not accomplished in an hour—so that they looked "right" on the ground floor and "right" with each other.

At the upper end, one looked into the holes of the cement blocks. This was wholly artificial and hideous. I planted this section first to obliterate the blocks as quickly as possible, with *Veronica astonii, Potentilla villosa, Asplenium trichomanes, Ramonda pyrenaica* and *Gypsophila aretioides.* All did well with the exception of *Ramonda* and *Gypsophila.* It was too hot for the former, and it seemed impossible for the *Gypsophila* to make contact with the dirt I could get into the hole. It grew well elsewhere in the scree.

Next I planted the shrubby material, small specimens of *Abies balsamea, Chamaecyparis obtusa gracilis, Picea abies brevifolia.* Of course, these in this small scree are foredoomed, since they are bound to grow out of proportion. *Chamaecyparis obtusa Golf Ball, Daphne arbuscula* and *D. petraea* were poor and weak little specimens when I got them—they tried

their best but could not make the grade. *Daphne cneorum album* and *D. collina* did beautifully. Also, *Micromeria corsica, Dryas octopetala minor, Petrophytum caespitosum, P. cinerascens,* and *P. hendersonii*—this last specimen is still alive but not in good condition. *Vaccinium vitis-idaea* var. grows but a peat bog is the ideal condition for it, and the same is true of *Pernettya tasmanica* which I also tried. Others included *Lithospermum intermedium, L. graminifolium, L. oleifolium, Acantholimon venustum* and *A. androsaceum, Genista villarsii* and *G. pilosa, Erinacea pungens, Globularia nana, Juniperus communis saxatilis*—the last will probably after a long time become too large—and *Helichrysum selago. Gaultheria trichophylla* has never done well for me in any other place. *Cyathodes colensoi* does better in richer soil. And not forgotten in the planting were *Penstemon rupicola* in crimson and white forms, *Salix retusa* and *Jasminum parkeri.*

The herbaceous material was set in next: *Primula minima* and its hybrids and other alpine Primulas; *Gentiana verna alata* (*angulosa*) ; small species of *Dianthus; Phlox adsurgens* and small compact varieties of *Phlox subulata; Potentilla nitida;* small Japanese *Adenophoras; Alyssum condensatum* and *A. wulfenianum*—this took over immediately and had to be removed; the best *Androsace sarmentosa* varieties and some Aretian Androsaces; *Soldanella minima* and *S. montana*—I also use this as groundcover among Rhododendrons where it is effective; *Arabis androsacea; Frankenia thymifolia*—part has to be pulled off annually; *Linum salsoloides nanum; Cyananthus integer; Geranium napuligerum, G. argenteum* and *G. subcaulescens* var.; a number of Campanulas as, for instance, *CC. betulaefolia, pilosa, dasyantha, piperi, raineri* and *stansfieldii; Morisia monantha* (*hypogaea*), *Boykinia jamesii, Phyteuma comosum, Asplenium ceterach; Myostis explanata* and *M. rupicola*—this must be divided each year after blooming or it will go into a decline. Enchanting *Narcissus juncifolius* and *minimus* come up small and clean through the rocks. I also planted a wide variety of Saxifrages—Kabschias, Englerias and a few encrusted ones. These did well enough, but would have been better if a little high shade could have been provided from the south.

Potentilla villosa Photo by Maxeine Williams

When all was planted, the whole was surfaced with a layer of limestone grit, from one half to an inch in depth. I found that this was not done for all time, because as I weeded or re-arranged, or even as the quail marched over the ground, the grit was disturbed and had to be re-worked.

One day, Mr. Otto Holmdahl came along—he has always been generous to me in the way of advice. He admired the scree enough to make me feel that something worth while had been created and then, "Ye gods! can't you do something about that wall?" The only thing I had been able to think of was to discipline myself to ignore it. However, I asked Mr. Holmdahl for suggestions and this is what developed: If a few sizeable rocks were placed skillfully against the wall and some of the taller plants, shrubby and herbaceous, were pulled against it also, the whole would look less set and molded. We made a journey for limestone rock, selected each one for particular character and several groups of twos and threes that could be placed together to form "escarpments." All had to have one flat surface to fit against the wall and none could be high enough to exceed the wall. We were very careful about placing them, so there would be no feeling of arithmetical spacing. The scree was vastly improved by these maneuvers and I no longer am compelled to school myself not to see the wall.

Last spring, I became anxious about the health of some of the plants; I thought they looked anemic. Taking courage in my hands, I poked three-inch holes throughout the scree, avoiding close proximity to the roots and dropped a bit of well-rotted and pulverized sheep guano into the holes. For a while, I was sick with fear that I should lose every plant. I didn't, they liked the treatment.

THE ALPINE HOUSE

STUART BOOTHMAN, Maidenhead, England

AN ALPINE house is nothing more nor less than a greenhouse wherein are cultivated rock garden plants of differing types. Some are grown there as they are unhappy outside, either because they do not like damp conditions in winter or are not as frost-resistant as they should be. Others are grown in the alpine house because their owners are "pot hunters"—exhibiting the plants at flower shows and winning coveted medals and cups—or it may even be because their owners, like your aged author, prefer indoor gardening in winter! Whatever the reason, a great deal of pleasure can be obtained from the cultivation of suitable plants in the alpine house, for plants can be had in flower throughout the whole year. In this case, the year commences in December with *Cyclamen coum*, followed in January by *Ranunculus calandrinoides*, in February by *Narcissus minimus* and the earliest Kabschia Saxifrages to the Asiatic *Saxifraga fortunei* in November.

In construction, an alpine house is similar to any ordinary cold greenhouse, but with considerably more ventilation. If possible, windows should open along the whole length of both sides and along both sides of the top ridge. This allows two streams of air to pass through the house in summer, maintaining cool atmosphere and preventing stagnant air which is so abhorrent to alpine house plants. It is most desirable to have the gable end of the house facing north, so that the sides face east and west, and the door end faces south. This affords the coolest summer conditions, for the door can be opened to admit the breeze and yet, not facing north, it will not admit arctic blasts in winter. An ideal width is ten feet, which allows easily for a central pathway, three feet wide, and two stages, each three

feet six inches wide. Gutters may provide rain water for a water tank beneath the staging, which itself is usually covered with a layer of stone chippings or may be of box-like formation, ten inches deep, into which the pots are plunged in sand. A little heat may be introduced in the house in winter, provided a temperature is maintained but little above freezing. This will not harm most of the alpines and will surely add to the comfort of the owner.

Plants in the alpine house are usually grown in half-depth pots, the most convenient sizes being five inches wide and four and one-half inches deep; seven inches wide and six inches deep; and a few ten inches wide and five inches deep. The last are reserved for plants of prostrate habit and for bulbs. More than the normal quantity of crocks is placed at the bottom of the pots to furnish the most efficient drainage. As a plant may stay in one pot for many years, a well-balanced compost is necessary. A base compost of three parts good loam, two parts leafmold or peat, and one part sand will suffice for most plants. More peat can be added for the woodlanders and more sand or stone chippings for desert or moraine plants. Half a pound per wheelbarrow load of fertilizer, made up of sulphate of potash, superphosphate of lime and "hoof and horn" meal will not force the plants unduly and will remain active for many months. The surface of the pots is usually dressed with stone chippings, which act as a mulch and prevent stagnant water at that vulnerable point where stem and root meet.

In spring, when in nature the snow would be melting, copious supplies of water are administered to all the plants. From midsummer to the beginning of winter, the plants will require individual treatment, depending upon the rate of growth. Some bulbs and many desert plants will have gone to sleep and need no water at all; other plants, which have yet to blossom, will take plenty of water. In winter, when most plants are dormant, little watering has to be done. But some bulbous plants will be growing and their soil should never get dry.

Light shading is necessary in summer and the ventilators are normally open the whole time from April to November and for the rest of the year, partially open or closed, according to the weather and the hardiness of the plants. After they have flowered, the plants seem to appreciate a month or two out in the open, to benefit from rain and evening dews. For this purpose, it is well to have a garden frame as an adjunct to the alpine house, where these and surplus plants can be accommodated.

As the plants grow, they will, of course, need to be repotted into larger pots or, if they are to be kept in the same pots, to have the soil renewed or revitalized with bonemeal. The time for this work is the period when the roots are renewing their activity—this may be in spring, when they awake from rest, or a few weeks after flowering, when they are regaining their strength to withstand the coming winter.

Alpine house plants are subject to very few pests and diseases. If the house itself is kept as clean as your household kitchen, if the floor is not the home of old and dirty, empty pots, if the atmosphere is fresh and dry and there is ample ventilation, there will be few troubles. Woodlice and thrips can be checked with DDT powder or spray; aphis can be controlled by nicotine dusting or spraying. As a general recipe for any plant not looking too happy—put it outside in a shady corner, repot it as soon as convenient and if that fails, then plant it in the rock garden where it will be cured—or killed.

THE AMERICAN ROCK GARDEN SOCIETY

IMPORTANT DATES: March 24, 1949, Thursday of International Flower Show week, has been selected for the annual luncheon to be held at the Essex House, Central Park South, New York City; April 23rd has been chosen for a pilgrimage to the gardens of the Misses Hill, Sea Breeze Farm, Lynnhaven, Va. All members of the American Rock Garden Society are cordially invited to participate in both these events, details of which will be announced later.

NORTH ATLANTIC REGION: Hereafter, the meetings of the North Atlantic Region will be held at eleven o'clock in the morning on the third Wednesday of each month at the Essex House, Central Park South, New York City. For further information, write Regional Chairman, Mr. E. L. Totten, 238 Sheridan Ave., Ho-ho-kus, N. J.

SETS OF SLIDES: Slides of the Ohme gardens, Wenatchee, Wash.; the F. Cleveland Morgan gardens, Montreal, Canada; the Clement S. Houghton garden, Chestnut Hill, Mass.; and the Leonard J. Buck garden, Far Hills, N. J., are available to members for only insured parcel post expense; slides of Oregon rock gardens and native alpines, collected by John G. Bacher, at rental fee of $5.00 and insured parcel post or railway express charges. For details, write Mrs. Warder I. Higgins, 429 West Park Street, Butte, Mont.

PUBLICATIONS: 1949 Yearbook of National Auricula Society (of England) will be ready February 1st and may be obtained through Mrs. Florence Levy, Box 218, Gresham, Oregon. This will include colored plate of the new gold-center seedling "Florence Levy."

Aymon Correvon, grandson of the late Henri Correvon, has written "Rocailles fleuries," an attractively illustrated book on alpines which should appeal to many members. It has not yet been translated into English, though this is under advisement.

A CASE OF MISTAKEN IDENTITY: In the file marked "For Future Issues," which Dr. Wherry turned over to the present editor upon his retirement, was the manuscript "Eastern Care of Western Rock Plants" which was printed in the September-October issue of the Bulletin. This bore initials which were taken to be F. K. R.

Quite by chance, on the very day the September-October issue left the press, the editor learned that the initials were not F. K. R. for Frances Kinne Roberson but F. H. R. for Frank H. Rose, of Missoula, Mont. It was then too late to correct the author's name. Credit is now given publicly where credit is properly due.

TO THE EDITOR: I was interested in Mr. Hamblin's article on Campanulas in the September-October issue of the Bulletin. In part, I find myself in

disagreement with him. For example, Mr. Hamblin puts *C. bellidifolia* in a different classification from *C. saxifraga* and *C. tridentata*. In an article written by Mr. Ingwersen and entitled "Plant Hunting in the Caucasus" appears this statement: "*C. bellidifolia, saxifraga, tridentata*, all grading into each other to a bewildering extent." At different times, I have raised all three of these plants and it seemed to me that there was considerable similarity between them.

Secondly, I should like to point out that *C. allioni* and *C. rupestris* are not synonymous—the former is a perennial, the latter monocarpic. The habit of growth of these two Campanulas is entirely different.

I liked Mrs. Regan's article on "Odd Cousins of the Campanulas." She did not mention one of the hardiest of all Phyteumas, *P. scheuchzeri* which I have grown for years. Perhaps you can use the short account of it, together with an excellent picture, which I shall send you.

ROBERT M. SENIOR, Cincinnati, O.

A BLUE LYRIC

HAROLD ALBRECHT, Belle Plaine, Minn.

Just by chance, I planted *Gentiana macauleyi* near that of our own native *G. puberula*. That fall, I was thrilled by the beauty of the two blue cousins, the one gowned in light blue, the other a bit more prim in deep blue-violet. I could only wonder what the effect of these two would be in quantity, the light blue stitching its pale thread into the cloth of the deep blue — breath-taking and exciting even to the imagination.

I know of no nursery which handles the Downy or Prairie Gentian (*G. puberula*), and I am certain it's to their shame. This Gentian held its own with the much vaunted *macauleyi*. Here it grows wild in one spot; never have I found it elsewhere. The plants are at the brow of a north-facing hill of prairie grass. They venture down only about one fourth of the slope, no farther. The natural location thus affords the sharpest drainage. The lush prairie grass forms the basis for a rich, light soil, very black and fine — doubtless the result of long years of decayed accumulation. A thick padding of dead grass serves as insulating material for keeping the soil cool.

For years, I tried to transplant some of the plants. My desire at first led me to the biggest specimens. No success! Then I dug smaller ones. Still no luck! At last I tried moving the plants in late fall with a round circle of sod, deep as possible, to go with the far-reaching, strap-like roots. That did the trick. My Downy Gentian grows its terminal cluster-head of flowers as entrancingly, with as much aplomb, as on the hill. I put a mat of long grasses, weighted with stones, about the base to furnish the necessary coolness. Before planting, I dug deep and gave a depth of rubble for drainage.

Here is a choice child of the prairies, an aristocrat with native blood, untainted by even a touch of European or Asiatic royalty. And yet it reigns proudly, challenging the cold blue of the September sky, defiant of early frost, and seeming to relish its ability to defy the nip of chill autumn.

Wilkie says that *G. puberula* is probably short-lived. Anyone who has seen its long, fish-line roots and substantial crown will question this statement.

One of my life's secrets — never to reveal where it grows. The knowledge would only incite robbery.

Illustration on Page 105

GENTIANA PLATYPETALA

Photo by Maxcine Williams

Gentiana platypetala is generally considered the most beautiful of the ten or more members of the genus native to Alaska. It grows in clumps up to a foot high and has rather fleshy leaves. The striking blue flowers, usually solitary on the stems, remain closed in cloudy weather, but open when the sun shines warm and bright.

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