BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

VOL. 25 January, 1967 No. 1

DIRECTORATE

BULLETIN

Editor Emeritus
DR. EDGAR T. WHERRY, University of Pennsylvania, Philadelphia 4, Pa.

Editor
ALBERT M. SUTTON
9608 26th Ave. N. W., Seattle, Washington 98107

AMERICAN ROCK GARDEN SOCIETY

President Emeritus
HAROLD EPSTEIN, 5 Forest Court, Larchmont, New York

President ..... H. LINCOLN FOSTER, Falls Village, Conn. 06031
Secretary ..... LAWRENCE HOCHHEIMER, Ridge Farms Road, Norwalk, Conn. 06850
Treasurer ..... ALEX D. REID, 260 Boulevard, Mountain Lakes, N. J.

Vice-Presidents
MRS. HARRY HAYWARD — F. O. PEARCE — BRIAN O. MULLIGAN
RICHARD LANGFELDER — MRS. LEE ARMIGER

Directors

Term Expires 1967
JOHN P. OSBORNE — MRS. JOHN KNIPPENBERG — CLAUDE A. BARR

Term Expires 1968
BURR B. BRONSON — BERNARD HARKNESS — LEE H. RADEN

Term Expires 1969
MRS. SALLIE D. ALLEN — JEROME A. LUKINS — HENRY R. FULLER

Director of Seed Exchange
LAWRENCE CROCKER
3355 Jacksonville Hy., Medford, Oregon 97501

Director of Slide Collection
MRS. RONALD S. GRAY
64 North Street, North Reading, Massachusetts 01864

REGIONAL CHAIRMEN

Northwestern ..... JOSEPH A. WITT, 16516 25th Ave. N.E., Seattle, Wash. 98155
Western ..... F. O. PEARCE, 54 Charles Hill Road, Orinda, Calif. 94563
Midwestern ..... MRS. LILLIAN M. LEDDY, Box 612A, R.D. 3, Mena, Arkansas 71953
Tri-State ..... MRS. MADALENE MODIC, R.D. 1, Box 118, Sewickley, Pa. 15143
Potomac ..... RALPH W. BENNETT, 5607 N. 22nd St., Arlington, Va. 22205
Delaware Valley ..... LEE H. RADEN, Chester Springs, Pa. 19425
North Atlantic ..... HENRY R. FULLER, 41 Sherwood Rd., Easton, Conn. 06425
New England ..... MRS. ROBERT EMERSON, Box 64, Somersworth, N. H. 03878

Published quarterly by the AMERICAN ROCK GARDEN SOCIETY Incorporated, under the laws of the State of New Jersey. You are invited to join—annual dues are: Ordinary Membership, $5.00; Family Membership, $7.00; Patron Membership, $25.00; Life Membership, $150.00; Overseas Membership, $3.50. The subscription price per year is $4.00. The office of publication is located at Ridge Farms Road, Norwalk, Connecticut 06850. Address communications regarding membership, dues, and other matters relating to the Society to Lawrence Hochheimer, Ridge Farms Road, Norwalk, Conn. 06850. Address manuscripts and other matters relating to the *Bulletin* to Albert M. Sutton, 9608-26th Ave., N. W., Seattle, Washington 98107. Second-class postage paid at Norwalk, Connecticut.

BULLETIN

of the

AMERICAN ROCK GARDEN SOCIETY

Albert M. Sutton, Editor

VOL. 25 January, 1967 No. 1

SOME EMIGRANTS FROM AMERICA

Kathleen S. Hall, *Edinburgh, Scotland*

One of the pleasures of alpine gardening is the challenge of attempting to grow plants from different altitudes and latitudes, and from other continents and climates, all within the compass of one's own garden.

This challenge is a personal one which differs with the conditions to be found in one garden or another. Even in this small country of Scotland there are tremendous variations in climate. On the West Coast, lapped by the Gulf Stream, it is possible to grow sub-tropical plants without protection; in the Central Highlands the ground may be frozen hard for several months of the year, while here on the East Coast we are liable to have in winter alternating spells of frost and thaw, snow and rain; conditions which high alpine plants dislike intensely. Therefore, in writing of American plants in Scotland I do not wish to generalise but will mention only some of those which thrive under the conditions of my own garden in Edinburgh, about half a mile from the sea. Of these plants all except three are grown in the open, and these three, as will be seen, only get protection in winter.

In recent years Lewisias have become very popular, particularly the *L. cotyledon* hybrids in a wide range of shades which, grown in a rock wall or scree, give a magnificent flourish in June and again in late summer. Two other species with a more refined beauty have flowered particularly well this year; *Lewisia rediviva* with its delicate pale pink, almost stemless flowers, opening wide in the sunshine over a period of several weeks, and *L. nevadensis* with pearly white flowers nestling close to the ground. Both are grown in well-drained soil in full sun.

Another scree plant which has flowered well over a number of years is *Douglasia laevigata,* whose cushion of small leaves covers itself with bright pink blooms. It would seem that our climate suits the plants from the Cascade Mountains, for *Claytonia nivalis* also grows well and increases itself by seed in several Edinburgh gardens, though it is comparatively rare in England. Last year we had the pleasure of seeing some fine slides taken by Albert M. Sutton, amongst them one of *Claytonia nivalis* in its natural habitat. This led me to grow it in a trough, wedged between rocks, where it has flowered profusely.

One could write at length of the Penstemons and Phloxes which make great splashes of colour in our rock gardens, but suffice to name one neat and charming form of each; *Penstemon pinifolius,* so unlike most of its fellows, with fine, asparagus-like leaves and narrow scarlet tubular flowers which open over a long

Dr. I. Simson Hall

Talinum okanoganense

period, and *Phlox caespitosa,* whose cushion is covered in spring with flowers of palest mauve.

Oenothera pumila and *Oe. flava* seed themselves cheerfully over the garden. *Oe. caespitosa* var. *crinita,* on the other hand dislikes our winter damp and has proved difficult to raise from seed. This year I acquired, under the name of *Oe. macroglottis,* an exquisite sessile species with long pink buds opening to a pure white flower fully three inches across, which fades to a delicate pink as it closes up and droops to the ground.

Talinum okanoganense has given unfailing pleasure each year since I first grew it in 1949. It has a small stone trough to itself and spreads its gnarled stems across the pebbles, seeding freely. In the spring it puts on small, purple-gray, fleshy leaves and through July and August there is a constant succession of creamy-white flowers like tiny waterlilies.

Our erratic rainfall is not appreciated by most of the plants from dry mountain regions but is welcomed by peat-loving plants and those from the woodlands of the United States. Most ericaceous plants grow and flower well here in soil containing peat and sand. The Phyllodoces, *Pp. breweri, aleutica, empetriformis* and x *intermedia (P. empetriformis* x *P. glanduliflora)* increase and flower generously, as do *Cassiope lycopodioides* and *C. mertensiana.* But that dainty species, *C. (Harrimanella) hypnoides* has resisted several efforts to establish it. *Rhododendron canadense* blooms well each year as does the delightful creeping, deciduous *Rh. camtschaticum.* Though this is found in Alaska, my thirteen year old plant probably originated on the other side of the Bering Strait.

Two small ground covering plants creep happily through the peat bank; *Gaultheria procumbens,* which forms a rich copper carpet, is studded with red berries in winter, and *Cornus canadensis* whose flower-like bracts make a gay show but have so far never been followed by fruit. *Tiarella cordifolia* is another good plant for ground cover; I have two forms of this one, one of them, possibly incorrectly named, has leaves which turn pink in autumn and remain as a pink carpet well into the winter.

In the shade of some cherry trees several Trillium species are establishing

themselves; *T. sessile* var. *californicum* with its mottled leaves, *T. erectum, T. ovatum,* and the handsome *T. grandiflorum*. Here, too, many of the Dodecatheons are growing into big clumps, and I am gradually making a collection of these graceful plants. *D. pulchellum* 'Red Wings', *D. meadia,* and a few others are to be found in the catalogues of alpine nurseries, but it is always more rewarding to grow one's own plants from seed. Thanks to the seed collected in the wild and sent to the S. R. G. C. and A. G. S seed exchanges, I have raised *D. jeffreyi* with its pointed gray-green leaves, *D. amethystinum, D. dentatum*, and several more which would have been unobtainable in any other way.

Many of the American bulbous plants are completely at home here. *Erythronium tuolumnense* and *E. revolutum* 'White Beauty' increase from year to year and some other forms are growing from collected seed. Less easy is *Fritillaria lanceolata* which has so far been grown in a pan with winter protection. However, it is increasing rapidly from bulbils and there will soon be enough to risk trying a few out in the open. It should be able to stand our winter which is usually far less rigorous than that of its native haunts.

There are two other plants which I have so far not dared to leave unprotected through the winter. *Eriogonum latifolium* is growing well, packed round with lumps of tufa in a pan of well-drained soil. This treatment seems to improve the silver of its leaves, which resent overhead watering. My plant of *Primula suffrutescens* is particularly treasured, for it was given to me by that great gardener, the late Mrs. Dorothy Renton, on my last visit to her wonderful garden at Branklyn, Perth. At first it was cossetted too much, being kept in the Alpine house where it survived without thriving. This spring it was moved to an open frame and at once threw out healthy new rosettes and several rich pink flowers. This is a very lovely plant, but not one to leave to the mercies of our winter.

All these and more—the list could become a mere catalogue—add colour and interest to the garden. Many are grown from seed and it is not always known from whom the seed came, but in my seed file for the last few years are the names of Dr. Carl Worth, Mr. H. Lincoln Foster, Mrs. Earl Marshall, and Mrs. Strutz. To them and to the other unknown donors we in Scotland are grateful for the opportunity of growing so many treasures from America.

PLANT COLLECTING EXPEDITIONS

C. R. WORTH, *Ithaca, New York*

In the past few years, after a lull during the 1950's, there has been a decided increase in the number of plant collecting expeditions, although they have tended to concentrate on southwestern Asia, in part because the favorite hunting grounds of the past are now behind political barriers. No less than three important expeditions, to Turkey, Iran, and Afghanistan, were contemplated for 1966. Two of these accepted subscriptions to a share in the harvest, and the spoils will undoubtedly be rich in wonderful plants, many of them new to cultivation.

A gardener who has never ventured to invest, or perhaps more precisely to speculate in this fashion may well ask whether it is worth his while, or whether he will be largely subsidizing botanical exploration, itself a most worthy objective. The answer is not easy to find, for much depends on individual interests and values, but a little help may be found by a brief consideration of the accomplishments of some of the more prominent professional collectors of the present century.

Perhaps the most familiar to American gardeners, because of his writings and his introduction of *Lilium regale,* is E. H. Wilson, but he made far less impression on the rock gardening world than did his successors. George Forrest

was perhaps the greatest of them all, and certainly, by applying mass methods, brought back the greatest amount of material, chiefly from Yunnan, and especially the Mekong-Salween Divide. In the course of seven expeditions between 1905 and 1931, he collected over 31,000 herbarium specimens and an incredible amount of seed—in 1931 alone over 300 pounds, of some 400 to 500 species.

Reginald Farrer visited the Tibetan borders of Kansu, in northwestern China, in 1914-15, and northern Burma in 1919-20, where he died at the beginning of the main harvest, so that few or no seeds were sent back that year. Frank Kingdon Ward, for nearly half a century, worked in Tibet and northern Burma. Joseph Rock on at least two of his expeditions into eastern Tibet (in part the same region visited by Farrer) sent back extensive collections of seeds. More recently, Major George Sherriff, with Ludlow and other companions, sent back seeds and plants in great variety from Bhutan, while several parties penetrated once forbidden Nepal, although not all, if any of these were supported by subscriptions. Most of these expeditions were in the monsoon regions, whose plants should have great difficulty in adapting themselves to our hot, dry summers, yet a surprisingly large number have become fairly common garden plants.

Farther west, E. K. Balls collected in Iran, northern Turkey, the Pindus range of Greece, and the Atlas Mountains before working in Mexico and the northern Andes just before the outbreak of World War II, which brought an end to his collecting expeditions. From 1937 to about 1950, Dr. Peter H. Davis, starting as a young student, collected extensively on Crete and Cyprus, and in Iran and the Cilician Taurus; his later expeditions have been for taxonomic purposes only. In the mid-1950's Oleg Polunin visited Kashmir for seeds (an account of this expedition was published in the *Bulletin*), and Iraq and Lebanon for early flowering bulbs.

In 1962, James C. Archibald, then a student at Edinburgh, visited the Atlas Mountains, in 1964 Greece, and in 1966 was to spend eight months in the field, traveling first across northern Africa, Lebanon and Syria, collecting as he went, to the high mountains of northwestern Iran. The Bowles Scholarship Botanical Expedition, comprised of four students from Wisley, also explored parts of northern Turkey and Iran in 1963, and Brian Mathew returned for a short time in the spring of 1965. Rear Admiral J. P. W. Furse and Mrs. Furse will this year (1966) undertake the fourth of a series of highly successful expeditions reaching eastward from Turkey into Afghanistan. Thrilling accounts of the Furse and the Bowles Scholarship expeditions have appeared from time to time in the *Journal of the Royal Horticultural Society,* whetting one's appetite for the glorious plants described and shown in color photographs.

In addition there have been numerous smaller efforts, of which the most notable is Mrs. Tweedie's introduction of some wonderful species from Patagonia. The Russians, too, have been active, for occasionally from there come seeds from the Pamir, Altai, and Tien Shan.

To the stay-at-home, all these searches for rare plants may seem to be delightful holidays, during which the collector sits among fields laden with flowers, waiting for the seeds, dried and cleaned, to fall into his gaping packets. No one who has not collected can appreciate the problems and vexations of a collector's life, even when all is going relatively well: the endless travel over primitive roads and trails, the desperate search for elusive plants which perhaps have decided not to grow at all that year, or if they have, either not to seed, or to shed their seeds when the collector must be elsewhere; the hazards of violent storms, the primitive living conditions. But these are all part of the game, and far worse can happen. Both Farrer and Forrest had to contend with tribal uprisings, even widespread revolutions; and the latter fled in direst peril of his life and

endured great hardships for many days. Kingdon Ward was trapped by the great earthquakes that changed the face of southeastern Tibet about 1950. E. K. Balls, on one of his Turkish expeditions was in sight of the mountains where he had planned to spend the season when the natives decided that he was Lawrence of Arabia returned from the dead, and forced him to turn back. Even today, when most collectors work in relatively peaceful regions and travel in jeeps or Land Rovers, which are their only homes for months on end, the difficulties and perils are by no means eliminated.

What of the thousands of species, in seed, bulbs, and living plants, which the hunters have sent back, in some cases repeatedly, over the past sixty years? How many of them have reached maturity and settled down in cultivation to the joy of their recipients? The writings of Farrer and Kingdon Ward, in particular, enable one to compare the notes on plants seen in the field, and harvested, with the occurrence of these species in the lists of nurseries and seed exchanges. The number is appallingly small, and yet that is to be expected. Wild seeds, in many cases, are far more difficult to handle, even by the most expert hands, than those that have become somewhat civilized through a generation or two in the garden.

The mere fact that a plant is widespread in nature does not necessarily mean that it will adjust easily to conditions in a foreign clime; numerous species of highly localized occurrence have proved more adaptable. The seeds may have of necessity been harvested somewhat prematurely, or in spite of appearing plump may be unviable, while some lose their viability in a very short time. Some will germinate, yet even under such ideal conditions as those of the Royal Botanic Garden of Edinburgh, die before flowering, or if they do bloom, without setting seed. A fair percentage will, of course, respond enthusiastically, even to the extent of self-sowing merrily in a climate utterly different from their native one. The knowledgeable collector can predict that certain species will probably be easy, but he cannot limit his collecting to the presumably ironclad sorts. Were he to do so, his harvest would be slim indeed, and his backers deeply disappointed. They wish to try their hand at the unknown, for perchance it may thrive in their garden and nowhere else.

The financing of an expedition is a major problem, for even though there may be only one or two in the party, the cost of transportation and living all add up to a tidy sum, no matter how simply it may be done. Forrest, at least on his earlier expeditions, seems to have been supported largely by a single wealthy person (A. K. Bulley, for one, commemorated by *Primula bulleyana* and *P. beesiana*), and Admiral Furse by botanical institutes working on a flora of Iran. Generally, however, funds are raised by a group of subscribers who share in the collected seeds and bulbs, and by the sale of dried specimens to herbaria. The current price of a sheet of herbarium material I do not know (in 1938 it was ten cents, and a hundred sheets would have been a hard day's work, even when the collecting was good), but shares in the harvest, even in these days of spiraling prices, are less expensive than formerly. I have been told that a share in Forrest's last expedition cost $1000., and in the 1930's, before the devaluation of the pound, the price was about $100., although half-shares were often available. Today the standard rate for a full share is twenty-five pounds (about $70), while Mr. Archibald offers part-shares at ten and even five pounds, though these latter will include only a portion of the species collected. Certainly this is not an excessive investment, nor one on which the collector will become rich; in fact he may have to dig into his own pocket to cover part of his expenses.

The returns to the subscriber vary with the season, the region in which the collecting is to be done, and perhaps in part the diligence of the collector. One expects a much richer harvest from China and Burma than from the barren peaks

of the Atlas, yet the one share I purchased from Kingdon Ward was the most disappointing I have had. Balls always gave very good value, but many of the plants collected in Mexico were tender and of little interest to me from the horticultural standpoint. Peter Davis sent many delightful things, and a few (notably verbascums) which I scorned, only to learn too late that English growers found them magnificent. Farrer distributed, apparently, over 700 seed lots from his two years' work in Kansu, and the last Ludlow and Sherriff expedition must have collected nearly 500 in a single season. But these were exceptional harvests of a very rich and diversified flora.

One can normally expect 75 species at a cost of about $1.00 each, a few of which may already be growing in one's garden, but the bulk will be of new material. More definitely, from Jim Archibald's expedition to the Atlas, I received about 110 packets, from the Grecian one 95. From the Bowles Scholarship Botanical Expedition to Iran there were about 40 seed and 30 bulb lots received. But the bulb harvest was actually many times as great, for I had specified that I wished only certain genera, and received bulbous iris, anemones and fritillarias; the last unsolicited.

How many species I have grown to maturity is perhaps an unfair question. Those of the late 1930's were somewhat neglected during the war years and largely lost, but some may have flowered during my absence. Many of Peter Davis' post-war collections stayed with me for some time, although I believe that there are only two in the garden at present. The most precious ones from Sherriff (which I received through the kindness of British correspondents), monsoon plants all, could not tolerate my climate, yet several species are still with me and have set seeds which were sent to the Exchange last fall. The unfortunate combination of absences on my own collecting expeditions, illness, drought, and abnormally cold winter temperatures are probably responsible for most of the losses among plants from Mrs. Tweedie, Archibald, Admiral Furse and the BSBE, which might otherwise have been avoided. Yet many plants have survived all these hazards, and several are making themselves thoroughly at home in the garden. Even precious *Dionysia aretioides* looked in good condition on January 1, though whether it will be with me in spring is of course uncertain.

All in all, I have not, of course, received as many plants as if I had spent the same amount of money on tried and tested plants from a nursery. But anyone who wants to be sure of getting his money's worth should buy only easy sedums and *Phlox subulata*—and forget that he ever thought of being a rock gardener. Less tangibly, but more delightfully, I have had the thrill and suspense of wondering what the collector would send, the excitement of opening the shipment and checking the field notes, the hopeful sowing of the contents of each precious packet, and waiting breathlessly (almost) for the first green shoots, the exciting and sometimes depressing struggle to bring the plants to maturity, grief over the losses and joy over the successes.

Gambling? It certainly is, and at long odds. The plant hunter has gambled his comfort, his health, even his life: for Farrer died in the mountains, Forrest a few days after he came down from them; Furse had to break off his third expedition because of severe illness; while Lester Rowntree, Kathleen Marriage, Sherriff (so I am informed) and the writer all had their collecting days terminated by heart ailments, probably induced by exposure to high altitudes.

The subscriber, on the other hand, gambles only a few dollars, perhaps the price of an evening on Broadway. Yet there is always some pay-off, and many of the plants one grows from the harvest of an expedition, one would never have seen otherwise. For few of them will ever be offered in the lists of seed exchanges, or even more tantalizingly, in the catalogs of British nurserymen, even though

they do linger, or even thrive, in gardens here and there. A gamble it is, but one my cautious nature will gladly risk, so long as there are collecting expeditions and I can find the money to purchase shares in them!

LITHOSPERMUM CANESCENS

"Arrow"

Having read with interest the article by Dr. C. R. Worth on "The Blue of Lithospermum" in the July issue of the *Bulletin*, I would like to relate my experience with the above. In 1961 I obtained eight seeds of this plant from the Seed Exchange and these were sown in a four-inch pot, in normal seed sowing compost and topped with a handful of quarter-inch down gravel. These seeds had been contributed by Dr. C. R. Worth.

The pot was placed in a cold frame and the seeds were no doubt well frosted considering the normal spring weather here. Of the eight seeds sown, five germinated at different times and I eventually found myself with five seedlings of different sizes. These were potted up, but unfortunately the smallest one, which was about one inch high, did not survive.

Having no experience with this plant, I decided to plant out in two locations; two plants were placed in a scree with southern exposure, the other two in a raised wall bed about eighteen inches high, which had some peat below but was topped with six inches of sandy loam with gravel content. This location faced east. The two plants set out in the scree did not survive the first winter, but the two in the raised bed survived and produced several flowering shoots the following year. The brilliant orange flowers make this lithospermum well worth growing, and with the flowers coming in September they were most welcome. It was decided to try to propagate.

Every shoot coming from the central crown produced terminal flowers, but nothing appeared early in the season suitable to take as cuttings. The main shoots, however, produced a number of side shoots after flowering and these were taken and easily rooted in a shaded north sand frame. The rooted cuttings were potted up and placed in a cold frame for the winter. However, the following spring all were dead. It seemed strange that the plants produced these non-flowering side shoots just prior to dying back to ground level for the winter.

Considering that the rooting of the side shoots might have been taken too late in the season, a couple of main shoots were shortened in spring the following year and side shoots developed immediately. These were available for rooting in June, the side shoots being about three inches long. The cuttings were placed in the same sand frame as the previous cuttings and all were rooted by early July and then potted up. The cuttings grew strongly and half were nipped out to try and help with formation of crown buds. Needless to say, none survived the following winter. The two remaining plants have at least a dozen flowering shoots each but the flowers did not set seed, and the question of propagation is still unsolved.

Looking at the plants the following spring, one crown appeared as if it could be divided. This crown was carefully divided and cut in two without disturbing the roots. The two sections were dusted with sulphur and held slightly apart with a small stone. The sections of crown only produced short shoots and did not flower. The divided plant did not survive last winter and 1966 arrived with only one plant left.

Having clipped out the dead center from a plant of *Lithospermum (Lithodora) diffusum* the previous autumn, it was found that a number of root sections left in just below ground level had produced shoots and formed new plants.

This clump of *L. diffusum* is now nearly a yard wide. Could this be the way to propagate *L. canescens*? To try, the soil was carefully drawn back from the roots under the crown of the remaining plant and several main roots as well as four smaller roots were exposed. The small roots were about one eighth of an inch in diameter and these were cut between two and three inches down and eased away from the parent plant to bring the root ends up to about one inch below ground level. The soil was carefully replaced about these and the main plant and left.

Inspection was made some weeks later and it was really satisfying to find that all the root cuts had produced shoots. Some pieces of roots must also have been left in from the divided plant when the dead crown portions were removed, for two further shoots were showing through the soil in that position. It was decided to uplift and pot up two of these root cuts. When the root cuts were lifted, it was found that one had a slightly longer root than the other, the larger being about nine inches long with a number of rootlets concentrated near the top of the root.

The lower portion of this root was cut away, divided into four and set in a pot as root cuttings. All root sections were under one eighth of an inch in diameter, and about one inch long. The pot was placed in a frame at the end of July, and the first shoot was showing from one of the root cuttings by the end of August, and two others have subsequently appeared. It would appear that propagation of *Lithospermum canescens* would be easy from root cuttings of reasonable diameter.

The plant on which the root cuts were made appeared to suffer a check in growth. Although producing sixteen shoots of similar length to last year, the number of flowers were very few.

A TULIP, A BUTTERCUP, AND A SAXIFRAGE

VACLAV PLESTIL, *Turnov, Czechoslovakia*

This year I was greatly pleased to be able to try in my rock garden new and very interesting species from several countries. Several of these gems I would like to tell you about.

A TULIP FROM CENTRAL ASIA—*Tulipa korshinskyi* Vved. is a dwarf tulip that as an endemic inhabits the stony slopes of the mountains in West Tadjikistan. As far as I know, this tulip has never been in cultivation except in URSS.

Last October, a year ago, through the kindness of a friend living in Tadjikistan, I received among many other plants a few bulbs of this beautiful tulip. I planted them very carefully in a very dry, sandy place on the southern face of my rock garden. In March I saw the first tips above ground, and a few days later the first flowers.

But let us take a short look at this plant's characteristics. *Tulipa korshinskyi* is in all aspects a small plant. Its bulbs are never more than 3 cm broad. They are ovate with hard, leathery coats which in the wild are of a very dark brown, nearly black, inside not densely covered by short, depressed hairs. It is interesting to note that because of the aridity of the climate and the perfect drainage where they grow in the wild that the old coats are conserved. On one bulb I counted twenty-two coats!

At the beginning of the blooming period the stem is quite reduced, even with the lower parts of the leaves at ground level. The leaves, two to four in number, are outstanding, brought together, deflected—often falcate, groove-shaped,

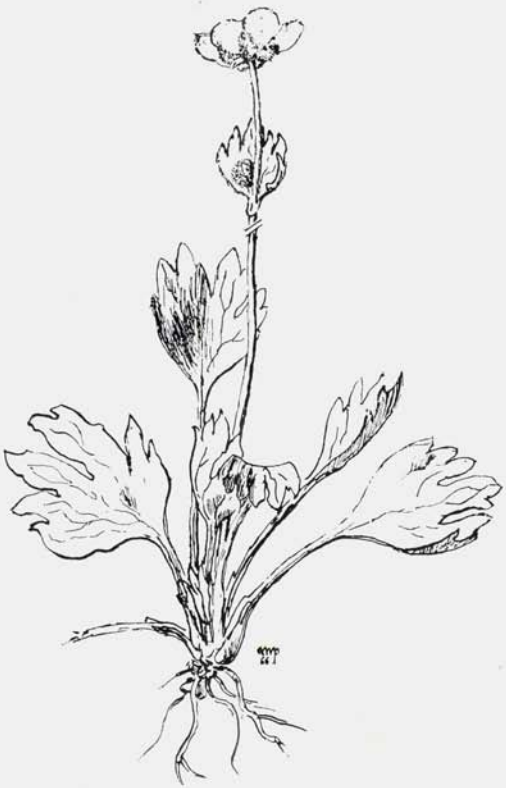
slightly pruinose with curling margins. The lower leaves are, in average, 2 × 10 — 13 cm, the upper ones more narrow—0.5 — 0.7 × 8 — 11 cm.

The pedicel with the bud, or the young flower, is very short; the flower, usually one, more rarely two, seems to sit in the midst of a "'leaf rosette." After a few days the pedicel begins to elongate, and by the time the seeds are ripe it is usually 20-25 cm high. Flowers are star-like with broadly lanceolate perianth segments, inside bright yellow with a narrow white margin; outside dull yellow with light violet shade on the midrib. Older flowers are often of a pale grayish yellow. Stamens and anthers are yellow.

Z. P. Botschanceva, in her wonderful monograph on tulips of URSS, writes that *Tulipa korshinskyi* often bears two flowers. In accordance with this I had two plants with two blooms each. The standard of this species came from Sari-Dascht in Tadjikistan and is deposited in the Herbarium of the Botanical Institute of the Soviet Academy of Sciences in Leningrad, and even it contains plants with two flowers.

In my opinion this plant can be a very good species for our rock gardens, though it seems to be somewhat tender in that the summer rains damage dormant bulbs. When I tried to retain one bulb in my rock garden, although the drainage was very good, I lost it.

Now I have sowed my first seeds, and I hope that the seedlings will be more easily acclimated. None of the bulbs made small bulbils. It seems that it propagates in the wild only by seeds. For next season I planted my bulbs into more



Vaclav Plestil

Ranunculus altaicus Pall.

limy soil with large parts of grit and coarse sand in an especially prepared corner with young plants of *Bongardia chrysogonum, Ixiolirion karateginum* and in the neighborhood of *Acantholimon glumaceum.* I hope that now all will be in order. This tulip is an early species starting its blooming period before *T. tarda* and a few days after *T. turkestanica.*

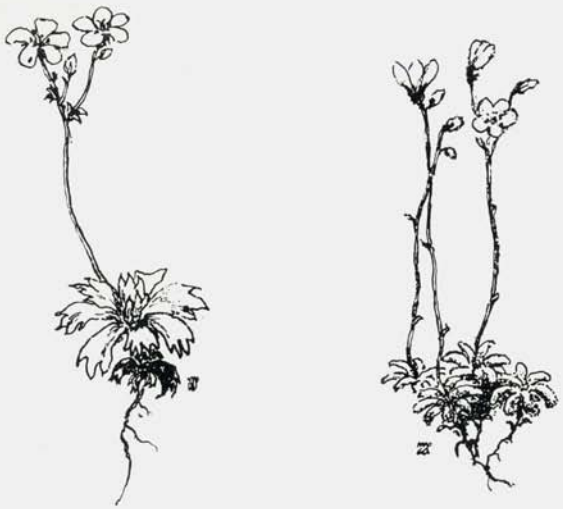
MY NEW BUTTERCUPS—*Ranunculus altaicus* Pall., widespread on subalpine and alpine meadows in the Altai Mountains and in the southern Tarbagatai Range, seems to be one of those neglected plants which might be grown and increased more often. I received seeds of this plant in 1965 and sowed them in pots in a porous, slightly acid soil. The pots were placed in the open, protected only from the rain. Germination was poor (seeds of the Ranunculi should be sown when fresh), the result being only five seedlings.

The leaves of *R. altaicus* are usually evergreen, leathery, clear bright green and about, with the petioles, 10 cm long and 2.5 cm broad, with indistinct veins. The blooming period here is in late May and early June. The sulphur, or deeper yellow flowers rise on scapes 18-20 cm high and have very attractive calyxes with short, dark hairs. I transplanted two seedlings last autumn into my miniature meadow inhabited by various *Orchis* species, *Parnassia palustris, Polygala amara, Carex firma,* and *Ranunculus cardiophyllus* Hook., and many other plants. The soil there is heavy and limy, never overdried. The seedlings bloomed this year, but the seeds were not collectible. The other three seedlings, planted in a well-drained place in a lime-free part of the rock garden, are much smaller.

Above I mentioned *R. cardiophyllus* Hook. It is the other new buttercup in my garden. It came from Alberta, Canada, but I have no detailed information concerning it from that area. For seeds of this gem I am very grateful to Mr. R. Ruffier-Lanche, Grenoble, France. It is of interest that the germination of these seeds was very good, nearly all came up in a few days. I appreciated the nice leaf-rosettes of this buttercup so new to me. On not too long petioles, the leaves are broadly ovate or elliptic, heart-shaped at the base and with low, rounded teeth on the margin. They are leathery and a nice shade of dark gray-green, not glossy and about 3 cm broad at most. The first flowers I have seen this July, small, about 1 cm across, with glabrous and deciduous calyx, pale or sulphur yellow. The first seeds were harvested and immediately sowed into the above mentioned "meadow." For me, it is a very welcome plant.

This spring I received seeds of two other buttercups; *R. macounii* and *R. cymbalaria.* Both came from the Mackenzie district, Northwest Territory, Canada, and I seem enriched in the possession of these two very nice plants. *R. cymbalaria* is now in all aspects quite similar to *R. cardiophyllus,* the tiny leaves are depressed to the ground, only the size is now one third of *R. cardiophyllus. R. macounii* has hairy, nicely divided leaves arranged in very decorative rosettes that are vivid green. I hope to see the first flowers next summer.

NOTES ON SAXIFRAGE—I would like to introduce to you some of the more interesting saxifrages from our flora; three lovely species at this time. The first of these is *Saxifraga caesia* L., one of our most minute of this genus. It is a dwarf, tiny plant making dense, compressed small cushions containing many short branches which have at their tops about 7 mm broad rosettes of lingulate, downward-curved fleshy and leathery leaves, which are of an intensive silver color, with limestone crusts on the margins. But few flowers are carried on the 5 cm high, thin stem, which is often marked by a light reddish-brown shade. Flowers are pure white, large in relation to the whole plant's size, broadly cup-shaped with ovate petals which overlap each other.



Vaclav Plestil

Saxifraga perdurans Kit. — *Saxifraga caesia* L.

This plant's delightful cushions can be found in nearly all limestone areas in the Carpathian Mountains, in High and Belansky Tatras, in Fatra; usually in subalpine and alpine zones, above 1200 m. elevation in shaded locations, in sunny screes on eastern or southern slopes at higher elevations. It likes to inhabit moist bank crevices, firm screes, and places where it will never overdry.

In culture *S. caesia* is not as easy as many other saxifrages from the Kabschia section. In our rock gardens at low elevation it needs well-drained spots with gritty soil with small parts of old leaf mold. It should not be in full sun nor deep shade. Both are as dangerous as lack of drainage. In the right place it is a very graceful and elegant plant.

One of the lesser known plants of Czechoslovakian flora is *Saxifraga* × pallens Fritsch, a natural spontaneous hybrid between the better known *S. caesia* (a member of the Kabschia section) and *S. aizoides* L. (from Xanthizoon section). It is seen very rarely in localities of both parents, or on the margins where the parent-species meet in the High and Belansky Tatras above 1600 m elevation. In the wild, even without flowers, it is an engaging, eye-catching plant, at first glance resembling a more robust *S. caesia* with darker, lime-spotted, gray-green leaves in a not too close rosette. Vegetative branches, especially in plants inhabiting the more moist places, resemble *S. aizoides,* the other parent.

The decorative, pale yellow flowers are arranged in a meager inflorescence on a thin stem about 7 cm high, sparsely clothed with short, ligulate leaves. The flowers are about 11-13 mm in diameter, with petals narrowly obovate, not covering each other as in *S. caesia.* In culture it is a very gratifying species when placed in a semi-shaded corner of the rock garden, and it is easy from cuttings. This year I have the first seeds, which were only a few from a large plant. I hope to observe some variability in seedlings should the seeds prove viable.

We do not know if *S.* × *pallens* propagates in the wild by its own seed, or if it is always a new hybrid, as for example, *Asplenium* × *germanicum* Weiss, which is a polymorphous hybrid between *A. trichomanes* and *A. septentrionale,* and sterile.

I received previously one cutting of this beautiful saxifrage from a friend who collected it years ago in the eastern part of the High Tatra. For two years

I have tried to obtain seedlings of this hybrid by crossing of parent-species in my garden, but without success.

Quite another plant is *Saxifraga perdurans* Kit., a representative of the Dactyloides section. In many respects it is near *S. pedemontana,* and is not rare in the Carpathians. I like it for its small, slowly increasing, dense clumps and for its early, small white flowers. It has its leaf rosettes arranged in neat, compact cushions, leaves are not too broadly triangular, divided at their tip into three to five unequal teeth. The leaves are usually about 10-12 mm long and 4-6 mm broad, darker grayish or brownish green.

The small white, or rarely pale rose flowers are on leafless, thin stems, and they start to open in March, or early in April; much earlier than any other "finger" saxifrage. In my garden I have it in a small, semi-shaded place in heavy, limy soil where I grow *Pinguicula vulgaris, Gentiana verna,* near *Salix retusa.* As I mentioned, in the wild it is not a very rare species for I have met it on the moist faces of banks, in the shade of boulders, on screes, and in alpine meadows in heavy soil in the upper parts of the Small Fatra, for example. *Saxifraga perdurans* is an easy plant and I recommend it!

TRIP TO MT. TARAWERA CRATERS

MRS. A. W. MCKENZIE, *Masterton, New Zealand*

The annual convention of the New Zealand Iris Society was held this year at Rotorua in the thermal district of New Zealand. After the convention, the visitors were invited to make a trip to see the craters of Mt. Tarawera.

The thermal activity of this area attracts many travellers from overseas and regular trips are arranged to show them the geysers, hot lakes and boiling mud pools, but the Tarawera Craters are well off the beaten track and seldom visited by travellers as one has to climb nearly 4,000 feet up a rough bush track that is used only by deer stalkers.

As some of the visitors to the convention were not so young, our hosts arranged to take us as far as possible up the mountain on farm trailers drawn by tractors. These trailers are normally used to carry hay and bags of fertilizer about on the farm. They have no sides and only rough wooden floors, on which we had to sit. There really was no track. A trail was just blazed through the scrub and undergrowth and in and out of the water holes that recent heavy rain had left. Luckily the trailers were not very high, so when one was bumped off it was not far to fall. It was a new and exciting way to travel but sighs of relief were heard as a halt was made above the bush line at about 3,500 feet for a picnic lunch. Water had been carried on the trailers, so the billy was boiled and a welcome cup of tea made.

Those of us who were interested in rock and alpine plants could scarcely wait to have lunch for there at our feet in the short mountain grass were dainty little white and lavender orchids (*Thelymitra* sp.), growing in profusion. *Pimelea prostrata* formed large mats of waxy, cream, sweet-scented flowers. We hoped also to find *P. buxifolia,* a small shrub with the same type of flowers, but we were unable to locate it, though it does grow in this district. Nature has sown the seed of *Celmisia gracilenta* with a lavish hand for the grass was starred with the dainty little daisies that here in this barren spot were tinted with creamy yellow and not the starchy white we usually associate with celmisias. Tall gaultherias in full flower had charmed us during our bumpy trip up the mountain, but here in the grass the little snowberry, *Gaultheria colensoi,* was widespread and in flower; later it will be covered in berries.

As the track from this point is strewn with huge rocks that had been deposited

by the eruption that formed the craters, we now had to travel on foot. With the ascent the view became more and more spectacular, for one can see the whole of the Rotorua district with its many lovely lakes, the active volcano Ngauruhoe and the snowy slopes of Mt. Ruapehu. Far out to sea on this clear day we could see steam rising from White Island which is also active.

As one nears the craters the growth becomes very sparse, but in the shelter of large rocks *Dracophyllum recurvum* grew, its curving sprays of tubular, heath-like flowers very attractive. These rocks which vary in size from large pebbles to huge chunks as big as motorcars are of beautiful shades; pinks, creams, yellows, and grays mingle with slaty blacks that sparkle in the sun as they are thickly studded with flecks of glass that was formed by the heat of the eruption. Tucked at the foot of a large pink rock almost on the lip of the crater, I found a charming clump of raoulia that growing in these conditions looked totally different from those I had seen before. It had the usual earth-hugging habit of all our raoulias, but the color was a pleasing mixture of sage green, cream and brown. It has transplanted quite successfully and is now growing happily in my rock garden. Fortunately we were given permission to collect plants, and as we were all gardeners nothing was carelessly uprooted. Only small pieces were taken, and in my own case, everything has grown.

The craters are a most wonderful sight and a photographer's paradise. Many beautiful colour slides were taken, and we all felt the rough ride and climb were well worthwhile. The eruption took place eighty years ago. The force was so great that it split the mountain from side to side and poured rocks, lava, and ash down onto a village, completely burying it and the once famous pink and white terraces which were then the greatest attraction of the thermal area. The terrible havoc caused by this eruption is now forgotten. Nature is reclothing the mountain and only the colourful beauty of the huge craters remains to remind us of it.

SEED GERMINATION IN *SHORTIA*

LEONARD J. UTTAL, *Madison Heights, Va.*

An interesting article by Mary H. Rhoads on a study of germination of seeds of the highly prized and romantically historical *Shortia galacifolia* appeared in the April-June, 1966 issue of *Rhodora,* journal of the New England Botanical Club.

Seeds of this highly localized endemic of southern Appalachia, so long a rarity, but now commonly offered by nurseries, do not appear on seed lists. Propagation, both in nature and commercially, is vegetative by offsets.

Seeds are produced, but it apparently takes much constant moisture to effect dehiscence of capsules. Accordingly, much germination takes place in the capsule. Seedlings falling to earth rarely survive. Some seeds apparently occasionally reach the earth, but these also appear to have a low survival rate. The process of germination has never been actually observed in the wild. The seedlings appear to grow very slowly and to be quite susceptible to winter kill, and otherwise intolerant to competition.

Miss Rhoads attempted to germinate seeds of *Shortia galacifolia* under controlled conditions, using various substrata, varying temperatures, moisture intensity and light. Even at best germination was less than ten percent. Best germination was obtained at twenty degrees C, in constantly damp mixed sand and sphagnum, subject to abundant light. The author did not mention whether the seeds were assuredly cross-pollinated or not, or if selfed. I do not know of crossing barriers in this genus, but it must be considered that plants habitually producing

progeny vegetatively experience reduced opportunity for crossing. Many plants require crossing to produce viable seed.

Miss Rhoads reported that seeds to which adhered some capsular tissue germinated five times as frequently as clean seed. This would suggest the possibility that some organic matter is necessary to serve as a catalyst for germination.

Obviously, these studies are only indicative of great mysteries surrounding problems of germination in but a single species of plant. Shortia will continue to be propagated well into the future as it is now; vegetatively. But there is much food for thought here for gardeners who have lavished the most tender care upon seeds only to have them fail in spite of it all.

Many plants which habitually reproduce by runners, reproduce as well by seeds, but it is the runners which blanket the site; seedlings help. Others, like the present subject, hardly seed at all, seeming to depend upon runners or other forms of vegetative reproduction, as bulblets, to continue the population.

Before sowing seeds, and better still, before submitting them to the exchange, examine them under a lens. If they appear shriveled and shrunken they probably have not been pollinated; they are dead. This is particularly true of Composites, such as aster and solidago, which are self-incompatible. It is easy to lift the pappus and think you have seed, but you may have only dead, unpollinated ovules. Ripe achenes are plump, and just "look alive."

FOUR CAMPANULAS

ROBERT M. SENIOR, *Cincinnati, Ohio*

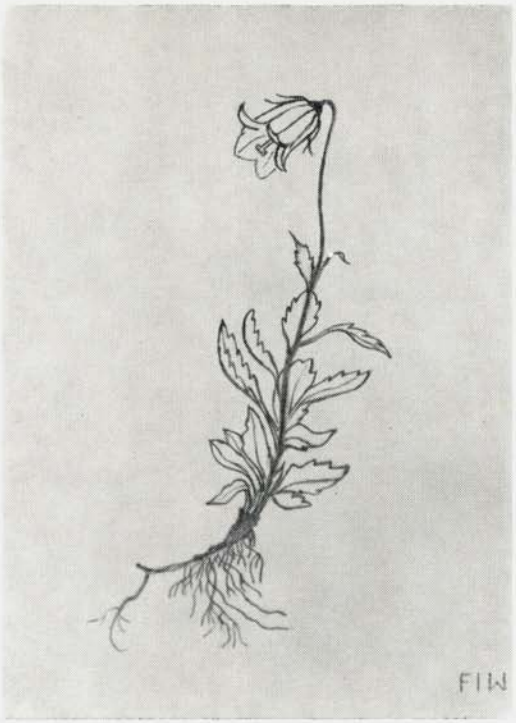
Of the many delightful low growing campanulas, *Campanula pulla* and *C. pulloides* are among the most attractive. The former is a true species whereas *C. pulloides* is a hybrid between *C. pulla* and *C. turbinata,* or as the latter plant is sometimes called—*C. carpatica* var. *turbinata.* In our experience, *C. pulloides* seems to have a stronger constitution and a longer life. However, if cuttings of *C. pulla* are taken some time in late spring, the species may be kept for many years. Some authorities have questioned whether it will flourish in a limestone soil. Possibly a soil with a neutral, or slightly acid reaction, may suit it better. In summer, some shade at midday is desirable. In fact, one horticulturist asserts it will thrive if it receives only some morning sun.

C. pulla is seldom over four inches high, with short, almost sessile, glossy leaves on the lower part of the stem, which terminates in a single drooping, bell-shaped, dark violet-purple flower, which considering the size of the plant, is rather large. The calyx lobes are very narrow, and approximately one-half the length of the corolla. The style is about the length of the flower. Our plant blooms in late June.

C. pulloides is about five inches high, and bears a much wider, cup-shaped, slightly nodding flower with broad, short, acute lobes. Like *C. pulla,* it probably needs some shade during the hottest part of the day. It blooms in early summer.

No doubt many of our readers have raised the two delightful plants, *Campanula nitida* and *C. persicifolia,* the latter relatively tall, the other a diminutive. Both can be procured with either white or blue flowers. Anyone not familiar with their relationship could hardly conceive of any close connection between the two species. Yet *C. nitida* is considered a Mendelian recessive of *C. persicifolia.* If one were to test this theory by planting seeds of *C. nitida,* it is said he might possibly find that over ninety percent of the resulting plants would turn out to be *C. persicifolia.*

In an article last year in an English magazine, the writer stated that he planted seeds of *C. nitida,* and that typical *C. persicifolia* plants were the result.



Campanula pulla

These plants were all kept together for several years and allowed to drop their seeds "in situ." From these a new crop of seedlings sprang up. Among them, a few typical *C. nitida* plants appeared, with their glossy, dark green leaves and good-sized flowers.

Apparently the writer above mentioned never cross-pollinated two plants of *C. nitida.* Have any of our members tried this experiment, and observed the characteristics of the offspring? If both parents are presumed to be recessive, then according to the Mendelian theory, the resultant seedlings should all prove to be true plants of *C. nitida.*

(Editor's Note)—For further intriguing information on the subject of *Campanula nitida, C. persicifolia,* and others please read Mr. H. Lincoln Foster's article, "*Campanula planiflora,* starting on page 43 of the April, 1963 Bulletin of the ARGS (Vol. 21 No. 2).

NEWS FROM JOHN OSBORNE'S GARDEN

(Editor's Note)—John Osborne, who gardens at the lovely address of 29 Dogwood Lane in Westport, Conn., has sent in two items of interest. One is follow-up news concerning the two Pyxidantheras, with pictures, and the other has to do with a bit of luck in finding a white form of *Phlox stolonifera* . . . but let him tell his own story:

I do not suppose it is quite right that I should have been the one to find a white form of *Phlox stolonifera.* This form has been searched for by many

people for many years and I did not search at all—it just appeared in my garden.

Mrs. Henry, of Gladwyne, Pa., I believe, gave us the two fine forms known as P. s. 'Blue Ridge' and P. s. 'Pink Ridge', and other good forms ranging from blue to pink, and combinations of these two colors have been introduced. To my knowledge a white form had yet to be found.

Two years ago, when I was enlarging my garden, I wanted to include a planting of the native *Phlox stolonifera* and sent to a collector of wild plants an order for three or four hundred plants to be collected in Tennessee, as some unusually fine forms had been reported as having been found there in past years.

The plants were collected in the fall and when they arrived I was somewhat annoyed because the clumps has been torn apart to such an extent that there must have been more than a thousand small rooted pieces that took a lot of time to plant.

The following spring they bloomed fairly well, but I do not recall seeing anything other than the usual range of colors. This spring, however, was different. The bloom was prolific, as it usually is with this species, and one morning when I walked down the path leading to this planting I stopped dead still when I saw the white form intermingled through the bed.

In collecting the plants a white clone must have been found, torn apart and mixed all through the shipment. Probably because the planting was so close and congested the white form had not bloomed that first spring.

The bed was dug up and the white form segregated. It is now being propagated and has been given to a nursery where it will be made available to all of our members.

Of all the woodland phloxes, I believe that *P. stolonifera* excels. It is easily grown in half shade and will tolerate even the driest places. It increases rapidly

Pyxidanthera barbulata in bud in the author's garden.

Pyxidanthera brevifolia flowering in the author's garden.

and blooms freely with a nice range of colors, and is a good year-round ground cover. What more could be asked of any plant?

I want you to see a photograph of *Pyxidanthera barbulata* in bud and one of *Pyxidanthera brevifolia* in flower. As far as I am aware this is the first record of the latter having bloomed in cultivation. It flowers a bit earlier than *P. barbulata* as can be seen from the photos which were taken at the same time in my Pine Barrens Garden.

Pyxidanthera brevifolia is not as attractive a plant as *P. barbulata,* for it unfortunately does not take on the spectacular fall coloring of its larger relative and it is certainly more difficult to please.

NOTES FROM THE NORTHWEST

SALLIE D. ALLEN, *Seattle, Wash.*

SUMMER ACTIVITIES—Many of our members were involved in activities planned for Margot Stuart, ARGS member from Pitlochry, Scotland, who spent her vacation in Seattle during July. Her visit was timely as she was able to attend our annual picnic, again at the home of Dr. and Mrs. A. R. Kruckeberg. Mrs. Stuart was able to meet many of our members during the tour of this fine garden, to enjoy the sumptuous pot luck dinner, and to share the good fellowship of singing around the fire. The highlight of this pleasant evening, however, was provided by Margot herself, in an outdoor program of slides of Millglen, the fascinating garden of Dr. and Mrs. T. A. Stuart, giving us a glimpse of a wee bit of Scotland on a summer evening in Seattle.

When they had obtained their property they discovered the ruins of two old stone cottages which had been enveloped by a jungle of trees and brush. It was

an arduous task to clear this out even to see what they had. In their desire to keep the ruins intact as much as possible, they have created beautiful gardens in and around the cottages in the most interesting and charming manner.

Another activity was attending a lecture by Mr. Patrick Synge, Editor of the *Royal Horticultural Society Journal.* Margot had never had the opportunity of hearing Mr. Synge lecture in Great Britain, so it was amusing indeed that in far away Seattle, they should meet. For us, Margot's ten day vacation flew by, and with sadness we had to bid her farewell. She left many friends here whose lives were enriched by her visit.

REFLECTIONS—The North Fork of the Teanaway River in the Wenatchee Mountains was selected for the summer field trip because within a comparatively limited area one can explore a diversity of habitats which support a great variety of plant material suitable for the rock garden. As a group we had not studied the flora characteristic of the glistening green serpentine screes, discussed in Dr. Kruckeberg's article "Rocks and Plants—An Episode in Montane Ecology," ARGS *Bulletin,* July, 1965.

Aside from the ever changing plant communities as we progressed up the trail at the end of the road, familiar plants were found growing under conditions completely different from what would be considered normal in other mountain areas. For example, our smallest gaultheria, *G. humifusa,* usually found in spongy wet mountain meadows, was noted in full fruit at the base of a rock in hard, dry soil in full sun. Similarly, the little Prince's Pine, *Chimaphila menziesii,* often unsuccessfully attempted by gardeners, is usually found in moist coniferous forests, in humus, and in shade or part shade. Here, in the Wenatchees, it was associated with scattered large *Pinus ponderosa* in a situation considerably warmer, with little shade, and in soil not leafy but hard and dry. One small plant collected here was placed in the garden in part shade in a soil composed of rotted wood and woodland duff mixed with a sandy loam. The plant now looks the same as when collected except that it has produced bright red leaf buds, which is most encouraging. Could it be that the hard soil from whence it was collected so restricted the normal wandering habit of this little chimaphila that it was forced to establish an adequate root system so necessary for successful transplanting?

This trip, rather than clarifying a number of things, served more to make one pause for reflection, and to question one's previous actions in collecting and attempting to grow our native plant material. We are told in our reading to study a plant in its native habitat, to study the conditions under which it grows; soil, moisture, and exposure, and to attempt to recreate these conditions in the garden for the greatest possible degree of success. Is this a hard and fast rule? Or are plants more adaptable to a wider range of conditions than we give them credit for?

Polystichum lemmonii (P. mohrioides lemmonii) illustrated in the ARGS *Bulletin* of July, 1965, a serpentine indicator, does not seem to wander to other soil types, but can be transplanted and grown successfully in various garden soils, in scree or woodland duff, in sun or part shade, and with or without rocks. One would think that a plant coming from such a restricted community would be impossible to grow in the home garden where conditions are so completely different. Is it simply that the intolerable element in other types of soil adjacent to serpentine is lacking in garden soil? Another example, also a lovely fern, is *Cheilanthes siliquosa* which grows well in full sun in poorish soil in the garden after having been removed from its serpentine environment.

A third member of this extraordinary community, *Douglasia nivalis* var. *dentata,* poses some problems of its own for discussion as to its true identity. *Douglasia nivalis* is described as having entire leaves, while *D. n.* var. *dentata*

may be distinguished by its serrulate leaves. The plants we examined and discussed, and I might add are still examining and discussing, had some entire leaves, some with one slight protrusion on either side of the apex, some with two on either side. Some were more pronounced than others. We can not honestly describe leaves of the plants we found as strictly entire or truly serrulate. The only positive thing we could say is that all we examined had the same puzzling quality. Whatever its name, it is truly a desirable (though not too easy) subject for the rock garden, with neat little rosettes of gray-green leaves and umbels of magenta flowers. It has been the experience of several of our members that collected plants remain in the garden for three or four years, blooming nicely as early as March, and then for some reason they die. Recollections of *Douglasia nivalis dentata* flowering beneath a transparent sheet of thin ice amid the melting snow, spurs one on to try it again. Certainly serpentine screes would indicate without question that one factor necessary for success is sharp drainage.

Not all plant communities posed such problems, nor did they detract from the pleasure of six families remaining to share a delightful week-end camping trip. Not the least of the pleasures, by any means, were the fresh trout and huckleberry pancakes for Sunday morning breakfast.

PRIMULAS FOR THE CONNOISSEUR—We owe a great deal to specialists like Mr. Herbert Dickson, who seek out little-known species in their chosen field, work with them, and give us the benefit of their accumulated knowledge. Mr. Dickson, through his part-time, hobby-nursery business is introducing many lovely primroses to interested people in our area. In speaking generally on the genus *Primula,* he said that although most people consider them to be typical springtime plants, they do in fact have a long range of bloom, from very early spring until late summer. The following notes were taken on certain species new to the writer, unusual, or of special appeal for one reason or another:

Primula luteola—Moist alpine meadows of the eastern Caucasus. Yellow flowers in June, in form resembling *P. denticulata.* It needs a good supply of water during the growing season, but should be kept quite dry during the winter. Unfortunately, this beauty is short-lived in the garden.

P. clarkei—A tiny Himalayan species introduced into cultivation about 1936, although described many years before. Plants form mounds covered with pink flowers with a yellow eye. Requires afternoon sun, moisture during the growing season. Some growers report this species as of easy culture.

P. modesta—A Japanese alpine or subalpine species. Beautiful plant forming four-inch rosettes. Flowers white or lavender-purple. Not long-lived, two to three years, however if it is happy in its environment, self sown seedlings will appear. A darling!

P. minima—Alpine regions of Austria, Bulgaria, and northern Greece. Rosette one and one-half inches across, single flower per crown, large for the size of the plant, pink-appearing on a one-inch scape. Easy to grow but difficult to flower. Scree conditions suggested.

P. pedemontana—A European alpine auricula species. Conspicuous brown hairs on margins and back of leaves. Five-inch scape with several rose-pink, white-eyed flowers.

P. rubra—A European auricula species which smothers itself with rose-colored flowers above foliage resembling a small, flattened auricula. Easy to grow in any garden soil; some shade suits it best. A completely satisfactory garden subject.

Mr. Dickson remarked that the auriculas like a neutral or slightly alkaline soil. He suggests growing them from seed as they are not readily available in the nursery trade. One reason they are not satisfactory to the tradesmen is due to a

curious habit of these plants. If the flower scape should droop in transit, even when watered, it will stiffen and will never stand up straight again.

P. parryi—Largest and showiest of the American species. Occurs in the Rocky Mountains from the Teton Range in Wyoming to the San Francisco Peaks in Arizona. It has leaves eighteen inches long and twelve-to eighteen-inch scapes bearing reddish-purple, yellow-eyed flowers. It needs its feet in running water during its growing season. If you can bring it through the summer there is no problem with it during the winter.

Much more work needs to be done with the American primroses as they are relatively unknown in cultivation. They need to be grown, propagated, and studied, and their progeny propagated until their needs can be better understood and they become more amenable to cultivation.

EXTRA CURRICULAR!—Although not an official activity of the Northwest Unit, the plant sale sponsored by the Friends of the Arboretum, Inc. in late September was participated in and supported by nearly one hundred per cent of the ARGS membership. The reason for including mention of this sale in these notes is that it indicates a deep concern by our members for our fine Arboretum and a realization of its importance to the community as well as pointing out what can be accomplished when people work together in a co-operative spirit for a cause in which they believe.

Seven members of the ARGS Northwest Unit are among the founders of the Friends of the Arboretum, Inc., organized in the spring of 1966 to further the development, advancement, and maintenance of the University of Washington Arboretum. An additional forty-three members of the ARGS were directly involved in supplying plant material and/or working directly on the sale, and nearly the entire remainder of the membership within the area attended the event. The involvement in the project was not strictly local in scope, as plants came from ARGS members in British Columbia, Portland and Medford, Oregon, Port Townsend and Bremerton, Washington, and as far east as New York. As a result of the one day sale, $9000.00 was turned over to the Board of Regents of the University of Washington to be used by the Arboretum director, Mr. Brian O. Mulligan (also an ARGS member), for such Arboretum projects as continuing education, attendance at professional meetings, and for maintenance and additional personnel.

GARDEN TOURS—(Editor's Note)—Due to Sallie Allen's unexpected flight to Ketchikan, Alaska, at the time of the scheduled June garden tour, Mrs. Elizabeth Peterson was asked to give us her account of the tour. Starting with January 1, 1967, Betty Peterson will be writing the "Notes from the Northwest" as she has been elected to succeed Sallie Allen as Corresponding Secretary of the Northwest Unit. Sallie Allen has earned a rest from this time-consuming chore, especially after several years in this office. The editor is sure that the membership will join him most wholeheartedly in voicing appreciation for her many contributions to the *Bulletin*.

(Mrs. Peterson now tells us of the garden tour):

GARDENS GALORE—Three more gardens were visited this summer by members of the Northwest Unit, and one day was not enough to encompass the tremendous diversity. The well-known garden of George Schenk has matured, and his immediate entrance garden has developed into a legitimate replica of a mountain meadow; masses of varicolored helianthemums, thymes, and other herbs over which George is counting honeybees per square yard and thinking about an original design for a hive.

In the curve of a circular drive, he has planted miniature forests of such conifers as *Abies lasiocarpa* and *Juniperus communis compressa,* which can be

kept to a suitable size by root pruning. Beneath these lie mosaics of intermingled mats of sempervivums, sedums, and an endearing lawn of *Crassula milfordiae.* This two-inch native of Basutoland forms small light green rosettes which turn brownish-red in winter. It blooms with terminal white flowers on one-inch stems, and creeps and divides nicely without being rampant. Sun, sandy loam, and a rock chip mulch should keep it happy.

The garden of Mr. and Mrs. Robert Putnam is a new one, the most finished area of which is terraced scree slopes leading into a valley. An enchanting feature in one scree is a boulder cave designed to shelter elves and pleased-looking *Lewisia tweedyi.* Another is the use of *Lewisia cotyledon* hybrids in many parts of the garden. In the valley is a plant ordinarily too tall for rock gardens: *Melandrium rubrum* var. *serpentinicola,* a four-foot hirsute, somewhat viscid-leaved perennial whose rich rose-pink flowers show to advantage because one can look down on them from the top of the screes.

The Putnams plan to create a primrose path through the valley. Being experienced with primroses, they have already some eye-riveting *Primula capitata mooreana,* not an easy plant, from whose scape arises a startling gray blue-navy blue ball. A "treasure" of Mrs. Putnam's is *Chiastophyllum oppositifolium* of roundish, irregularly toothed, waxen green leaves which tend to be deciduous. Its six-inch drooping sprays of yellow have been likened to those of laburnum. This plant likes sandy loam and slight shade, and can be divided. It can also be propagated by leaf cuttings, as well as by seed.

On a slope being encroached by a highway on one side and by a college and a switch station on the other, Roy Davidson has formed an island of Japanese tranquility in the midst of which is his beautiful house. There is a singing stream running from one pool to another; a rhododendron wood, a plantation of iris species and hybrids, one of the most interesting of which is a new hybrid aproaching red; a difficult color to produce. There is also a lovely clump of a new lavender-blue, inter-sectional hybrid, *Iris* 'Elvie B. Page' *(I. gormanii* x *I. setosa),* which looks like *I. setosa* with standards. Being of a whimsical nature, Roy has "planted" other intriguing items along the brook, such as *Sempervivum plastica perfecta,* which fooled several hapless visitors. It was just that: plastic! In process of construction is a scree of porous basalt reminiscent of Roy's beloved eastern Washington birthplace. There was not time to see the shrubby penstemons which Roy collects for their leaf variation, but a new, as yet unnamed, miniature hosta is worth noting and worth protecting, for its beautiful leaves are considered slug caviar.

BEGINNING WITH COLD FRAMES

KRISTIAN FENDERSON, *Marlow, New Hampshire*

At the urging of one of our New England members I have undertaken to describe briefly how I, as a novice rock gardener, use cold frames to solve some very common but important problems. Here at the onset I would like to give unlimited credit to Mrs. Ruth Manton, of Durham, N. H., where I am a student at the state university. The practices which I have observed at Kathelen Gardens I have adapted for use under my own conditions. No doubt much will be familiar to gardeners with experience equal to Mrs. Manton's, but perhaps other beginners will find something of use in the methods which I have borrowed.

I am attempting to grow alpines on a small wooded slope facing southeast and sheltered on the north and west by outbuildings. After much clearing and rubbish removal, I was left with a young stand of elms and maples beneath which the soil lacked both depth and nutriment. Because of their fibrous root systems

which lie at, or just beneath the surface, it was impossible to cultivate what little soil there was. I found that it was far too dry an area to be easily made into a regular woodland garden. In this area I am fortunate to have a variety of exposures ranging from full shade to full sun; all however, are equally dry.

The first step I took in adapting to these conditions was to build nine cold frames approximately three feet square and nine inches deep. These were constructed of scrap lumber and stained with a wood preservative. Cello-glass covers, about three inches deep, were built to match each frame. Four mil polyethelyne plastic sheeting was tacked loosely across the bottoms. Small, half-inch holes were drilled a couple of inches above the lower margin of the frame to insure adequate drainage.

These completed frames were then installed in a variety of exposures. Square holes to receive them were dug out with great difficulty to about a depth of two inches. The frames were then filled to the proper depth with any available drainage material, such as broken brick, lumps of coal, and ugly small stones.

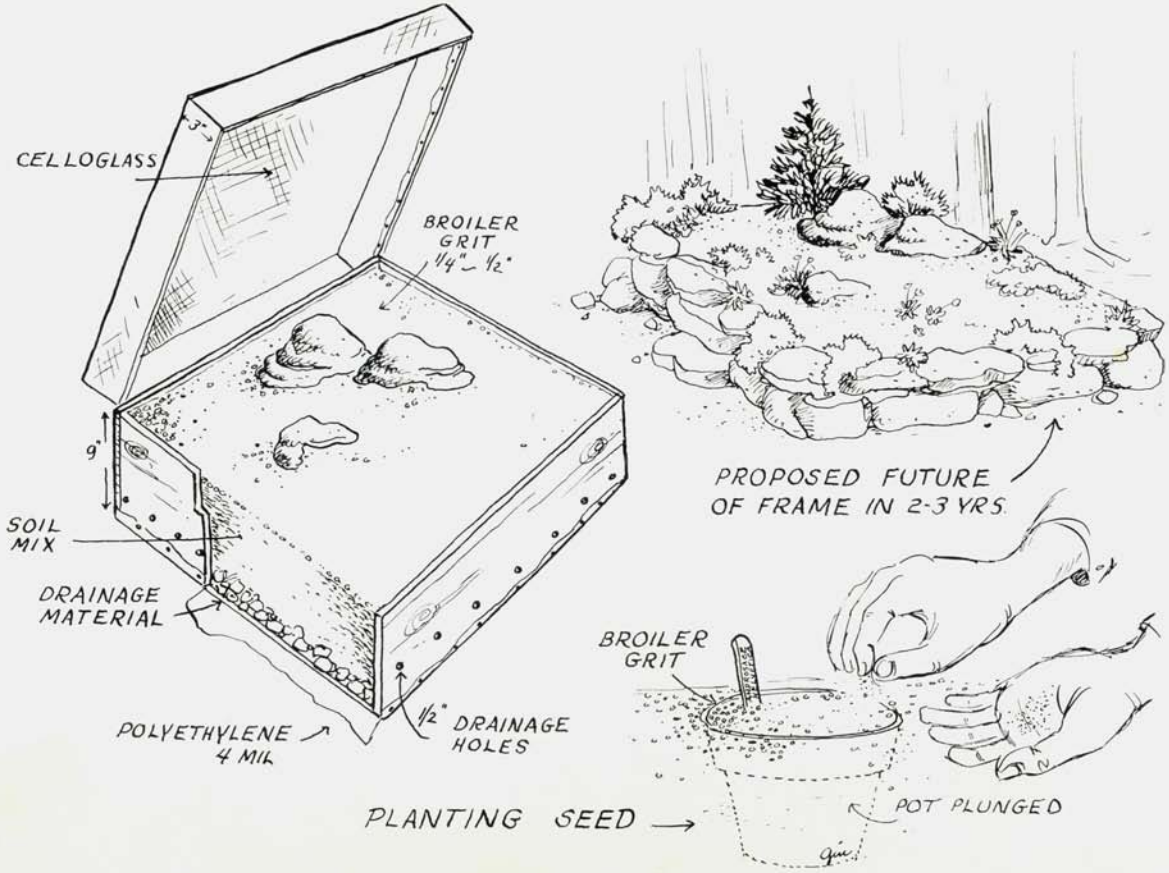
The frames were next filled heaping full of a general soil mixture, varying slightly with exposure and future use. The basic mixture consisted of one part sphagnum peat, one part sharp sand, old rotted straw, and a few large sauce pans each of lime and dried cow manure. These were all mixed dry in the frame with no tools but my bare hands. When the "feel" was just right, and the frame heaped to overflowing with this mixture, I tramped it down. To bring the soil level back up to the top of the frame I top dressed with a similar but finer mixture which I did not tramp down. I then took interesting weathered rock fragments of a six to eight inch size and embedded three or four solidly in each frame. These were chosen and matched carefully for strata and texture. I then soaked the entire frame. As a test of the soil mixture, the correct proportions will never allow water to run off or to stand in surface puddles, but will disappear from the surface almost immediately.

After the soil had settled I top-dressed all frames, both of acid or alkaline reactions, with about one half or one quarter of an inch of granite chips which I had purchased under the name of "broiler grit" at a local grain store. The finished frame was a smooth flat surface, except where interrupted by some unevenness where the rocky outcrop made an interesting terrain.

How and exactly what was planted and the successes and failures of individual plants and batches of seed is another story. It is enough to say that I am very pleased with the results. Seed is sown, either directly in the frame in little patches, or, if rare and choice, in pots plunged to ground level. I might also mention that I was careful to plant each frame with its own miniature ground cover, shrubs, and accent plants so that each was a complete alpine garden in small scale.

Perhaps this would be enough for some gardeners, but I could never be content to limit myself to the artificial practice of growing alpines in boxes. After these small gardens are fully established, the frames will be lifted from around them, though the plastic will remain beneath them, to provide moisture and protection from invasive tree roots. The edges of these gardens will be filled in with a similar soil and bolstered up with matching rocks. The first winter the contents of the former frame may be sheltered with their old cover, but the time will come when they will be able to thrive and perhaps with luck, multiply in a situation which only a few years earlier had been completely inhospitable.

In addition to serving the functions of a regular cold frame, these temporary frames provide an immediate enjoyment not possible when one limits oneself to tending rows or pots of seedlings. Each plant from the onset is a part of the garden and this applies as well to a colony of seedlings clustered in the shade of



A new use for cold frames. Virginia Howie

a small stone outcrop. I use pots, too, but they are plunged to the rim in the frame and top-dressed with the same material covering the surrounding soil.

Extreme care has to be taken to avoid plants which would take over an entire frame or would become far too large when once established. But the plants that are acceptable are those plants that are the ultimate objectives of dedicated rock gardeners. Thus, through learning the advantages and requirements of growing plants in these "cold frame gardens," the novice can hope to become an experienced gardener.

In closing, I would like to say that I would sincerely appreciate comments, experiences, and suggestions from other gardeners facing similar problems as mine.

INTERCHANGE

CASTILLEJAS IN THE GARDEN—How often have we marveled at the sight of a colorful clump of Indian Paint Brush in the wild and wished that we might grow these allegedly parasitic plants in our gardens? A member in Seattle has this plant flowering regularly in her garden, but her method of collecting is to take a sizable piece of turf, incorporate it in a sunny spot in her garden and leave it alone. Evidently the host came along with the turf. The editor has seen and photographed on Mt. Rainier, *Castilleja cryptantha* growing and flowering in a hairline crack in a rock face where it was impossible for any other plant to be growing. Certainly, this was a no-host castilleja! In a recent letter from Mr. W. A. B. Robertson, of Scotland, he wrote, "I have had my second lot of Castillejas flowering this year and I have now a group of plants outside. Hope they stand the winter." It is suggested that some member with a knowledge of these questionable plants prepare an article on them for the Bulletin.

ASTRAGALUS—OXYTROPIS, ETC.—An article on the *Fabaceae,* with special emphasis on *Astragalus* and *Oxytropis,* has been prepared for the *Bulletin* (it may appear in this issue should it arrive in time). It is by Ing. Vladimir Vasak, of Czechoslovakia, who specializes in the *Fabaceae.* To further his knowledge of this family he has asked that members everywhere collect what seeds they can, from the wild or from gardens, of *Astragalus* and *Oxytropis* and related genera which are suitable for rock gardens, and send them to him. His address will be forthcoming in this or the next *Bulletin.* He says that it is not necessary that seeds sent him be identified as to species or variety, but it would be helpful if they were. Most important to him are details of the collection locality, the date collected and the name of the collector. Joining him in this request is Vaclav Plestil, also of Czechoslovakia, who has become a valued contributor to the *Bulletin.*

THELYMITRA LONGIFOLIA—Members interested in orchids in reading Mrs. McKenzie's article in this issue may wish to know which species she was referring to. The article as written referred to *Thelymitra* sp. Since writing the article she has been able to identify it as *T. longifolia.*

FERNS—Mrs. Phyllis Warren, Dunedin, New Zealand, has written an article "In Search of New Zealand Plants," with the sub-title "Tramping in Fiordland," which will undoubtedly appear in the April *Bulletin.* In the letter accompanying the article, Mrs. Warren wrote, "Incidentally, I should like to mention here how much I enjoyed the article by Neill Hall on 'Flight to the Long White Cloud.' I know very little about ferns, but Mr. Hall writes of them with such enthusiasm that I shall certainly take a more active interest in them the next time I am in Fiordland." It might be mentioned that Fiordland is New Zealand's largest National Park. Its area embraces over three million acres, making it, as well, one of the largest in the world.

THEFT OF ROCK GARDEN PLANTS—Recently a couple who are ARGS members returned home to find that their garden near Kingston, N. Y., had been visited by a ruthless collector who removed many choice labeled rock garden plants. Plants which were not labeled were not taken. No comment seems necessary except one: NO TRUE ROCK GARDENER COULD HAVE BEEN GUILTY OF THIS UNFORGIVABLE ACT!

TOO MUCH SUN FOR *VIOLA PEDATA*—In a lively discussion at the November meeting of the Northern Westchester Section of the ARGS, as reported by Mrs. Edith R. Jackson, of Katonah, N. Y., it was revealed that some members' plants of *Viola pedata* had been sun-scorched this last summer. Although these plants grow naturally in full sun, the point was brought out that in their native haunts they probably have an adequate water supply at their roots, whereas in gardens there is insufficient moisture during the droughts which continue to plague the area. It was reported that plants which were grown in at least half shade, but always with some sun, fared well and even multiplied.

COLLECTING *CYPRIPEDIUM ACAULIS*—At the same meeting Mr. Edwin J. Alexander emphasized that in digging *Cypripedium acaulis* from the areas where it would otherwise be destroyed, the shallow, sub-surface runners (should it be stolons?) should not be broken, but should be carefully followed along to their ends. Also, it was noted, the loose acid soil from rotted oak logs is one gardener's joy in growing this plant abundantly.

THE HELLEBORINE ORCHIS – A WEED?

(Editor's Note)—From several sources have come items of interest on this subject most of which have been brought to the Editor's attention by Mr. Burr B. Bronson of Watertown, Mass. Despite some duplication, it is thought that our readers will welcome the various items appearing below.

An article by Mrs. Mary R. Fenn, Alcott Rd., Concord, Mass. 01742

ORCHIS INVASION

The more I learn about plants, the more baffled I am by them. Four or five years ago I brought down from our summer home in Vermont, Scotch bluebells, or harebells, and planted them in my Concord, Mass., garden. That was the last I ever saw of them; that is, until last summer when in the midst of the drought (and we were away for six weeks, with no one touching the garden) they all came up and bloomed. Why? Well, of course, I could explain that they are natives of dry, rocky ledges, and perhaps the drought conditions were just right for them, so they germinated. However, I have also been bringing down the lovely Hellebore Orchis, *Epipactis helleborine,* and introducing them into my Concord garden with little success, when suddenly last summer I had them springing up all over the place. We can't blame the drought for that, for even though the helleborine orchises are to be found in drier locations than most, the family is well known for its preference for moist, rich woodlands.

Mr. George H. Pride of Worcester, Mass., threw some light on this puzzle by telling me that this orchis, together with one other in New Zealand, is suddenly springing up everywhere, and has reached the status of a weed. A beautiful weed it is, with its sturdy stem, alternate upward-tilting leaves, and typical orchis blossoms which are generally a shade of mauve with darker markings. I have found them for the most part in limestone areas, in high-shaded woods growing with showy orchises *(Orchis spectabilis),* cohosh, and maidenhair ferns. I have also seen them growing in ditches along country roads. But in my garden they

are perfectly content with sandy, acid soil beneath pines and oaks.

Why should this hitherto rare orchis plant be undergoing its own population explosion and seem to be taking over the countryside? Well, I don't know, and I suppose no one else does. It's just one of those curious things which makes the study of nature so very interesting.

In neighboring Lexington, Mass., there is a place which started out as a gravel pit, dry and sterile. In digging down, the steam shovel struck a vein of water and the place flooded into five separate ponds with very wet, spongy ground in between. Into this place have come bog plants, rare bog plants at that. These include the Calopogon orchis, sundew, the water fern, Marsilea, and the extremely rare orchis, Loesel's twayblade.

How did these bog plants come to grow in a place which started out to be a gravel pit?

Excerpts from a letter written by Mr. Bronson to the Editor:

My interest in the Epipactus dates back to July '61, when in looking for plants in central New York, near Norwich, we found a small stand of orchis unfamiliar to me. We dug up two plants and took several photo-slides of them, and on returning home planted the two plants in our garden. They came up in the spring of '62 and bloomed, and the seed was given to several rock garden friends. The two plants did not come up in '63 and none of the seed germinated.

I reported this find to the Wild Flower Society and Mr. Stephen Hamblin identified it as *Epipactis helleborine alba.* This plant was again brought to my attention in the current issue of the *New England Wild Flower Notes* by a short article by Mrs. Fenn. I contacted her, and we visited her on Sept. 26. These orchises have appeared in many places in her garden and also in neighboring gardens where no such plants had ever been planted. The rare orchises mentioned in her article, now found growing in a former gravel pit, are varieties never found before in this locality.

Although Mrs. Fenn is not yet a member of our Society, I thought her story was of sufficient interest to warrant asking her to write it up. Mrs. Fenn has spent many years in tracking down the trails and woodland haunts of Thoreau who once made his home on Walden Pond. This area has now been made a National Wildflower Preserve.

Mr. George H. Pride's article in the Autumn, 1966 issue of the *New England Wild Flower Notes*:

I first saw the Helleborine orchis growing in a small colony of a dozen or so plants in Sturbridge, Mass., about 20 years ago. The next time I saw it, it was in great quantity above Bash Bish Falls in the western part of the state. Since then I have found it in several places in Worcester County.

A few weeks ago a friend near Rutland, Vermont, brought me what he said were three different orchids to identify, but two turned out to be the Helleborine, showing what I have seen several times before—a great variation in color. One was a green-yellow and the other had flowers that approached a deep violet-green. I have noticed a considerable variation in length of leaves, height of plant, and color. It seemed very adaptable to all sorts of habitats but apparently does particularly well in dry woodlands. I have found it coming up through layers of needles under dense evergreens where nothing else seemed to thrive.

It certainly is strange that as large a family as the orchids should have so few species that can be considered weeds. We may be witnessing a preview of a trend in evolution. The orchids are considered the "last word in evolution" in the monocotyledons, and with the Helleborine we may be seeing a preview of things to come.

Epipactis helleborine alba

Excerpts from description of Epipactis helleborine in *Orchids of the Western Great Lakes Region* by Frederick W. Case, Jr.:

The Helleborine is an attractive European species which is now established and spreading throughout the northeastern states.

GENERAL DISTRIBUTION. Not a native species, and therefore has an irregular pattern, but appears now at many widely separated places in New England, the Lake States, Missouri, and even Montana. First collected in the United States near Syracuse, New York, in August, 1879. It has recently appeared at a number of stations in Michigan.

HABITAT. Apparently rather indifferent to kind of habitat, for it has been collected on flood-plain banks, clayey soils in hardwoods, wooded sand dunes, and brushy waste places. It occurs mostly under deciduous trees.

Few botanists regard it as a native North American species. It is common in Europe, where it is widely used in folk medicine. Botanists theorize that it was brought to America by immigrants before the time of strict plant quarantine laws, or was accidently introduced as seed in soil with nursery stock. Evidence for this explanation is that the Helleborine was not detected in our flora until

late in the history of plant exploration and that all early records were from the vicinity of large eastern cities.

When this species does appear it quickly spreads, weedlike, across the woodland, often forming colonies of hundreds of plants. Though not showy, it is graceful and attractive. The speed with which it spreads would seem to indicate that it could readily be cultivated from seed. Its apparent indifference to soils and cover may mean it will transplant with ease. It would be a good subject for a woodland flower bed.

FIELD TRIP IN THE SIERRA NEVADAS

Pauline Croxton, *Folsom, California*

A happy group, members of the newly formed California-Nevada Section of the American Rock Garden Society's Western Region, met early Saturday morning, July 16, for their first field trip. They met just east of Carson Pass, elevation approximately 8650 feet, not far from the Nevada border at the beginning of the trail to Frog Lake. Carson Pass and the nearby area has magnificent scenery, with trails through typical alpine parks where there is an astounding diversity of plant life growing on both granitic and volcanic soils. One can see within a day's walk a great number of plant communities, from meadow to woodland, typical saxatile, or a "desert pavement" grouping. As the season progresses, the color palette changes, the blue, white, red or pink tones in turn predominating.

Snow melted early in the mountains this season and the lack of moisture was quite apparent to any frequent visitor to the area. There was a lot of color this time, too, especially at the higher elevations, but flowers were not as profuse as they can be, and the plants had reached only about half their usual height. Spring was over at the pass and on the trail to Frog and Winnemucca Lakes many plants were found in seed. There was our beloved, well-known "Pussy paw," *Calyptridium (Spraguea) umbellatum*, that had grown and bloomed in a light textured sandy loam in my garden until it was displaced by *Globularia cordifolia*. Seed was collected from it as well as from *Draba* sp. of which I found an impressively dense cushion in the shelter of a big rock. *Raillardella argentea, Malacothrix,* and *Eriophyllum lanatum*, and a small chaenactis with very handsome pinnately divided leaves (silver) gave us some of their seed capsules.

The tiny, woolly pod loco *Astragalus lectulus purshii,* a handsome, almost white member of the desert pavement community, still had some pods that had not blown away. *Haplopappus acaulis*, that cheerful little yellow daisy, had some ripe seed, as did some of the alpine asters and *Erigeron compositus*. Lupines were still blooming and we passed some shrubby cinquefoils. The wet meadow near Lake Winnemucca, in spite of the drought, had some iris, pedicularis, and mertensia to show, but the perennial flax had such small flowers that I at first wondered if it were something else. Scarlet Gilia, *Ipomeria (Gilia) aggregata,* was blooming all over the sunny slopes. We saw pink, red and near white forms of it.

Of great help were Mrs. Margaret Williams and Wayne Roderick, who, both being familiar with many of the plants in this region, pointed out and named a great many to the other members of the group. The tiny Sierra onion, quite numerous in places, was delicious to eat raw, I was told; so it was when I dubiously tried it. The eriogonums that can be so showy with their masses of yellow flowers were having comparatively few this year. *E. ovalifolium* with its dense, gray mats looked handsome as usual.

At Lake Winnemucca, a break was called and we rested until everyone

caught up. A few decided to go down to Woods Lake while the rest climbed up the slope a bit and found themselves some nice rocks to sit on beside a running stream. Here lunch was eaten and there was talk of what had been seen; of the low epilobium carpets that were still in bud, the gentians and the lewisias seen in a meadow, of *Cassiope mertensiana,* still blooming, and of *Kalmia microphylla,* not found in bloom. After lunch, a rock scramble above Winnemucca produced sights of a wonderful display of the Sierra primrose, *Primula suffrutescens* and the lovely alpine buttercup, *Ranunculus eschscholtzii.* Here we caught up with our mountain springtime and from there on the trail wound up slopes carpeted with blooming asters, lupines, and a number of yellow composites. Going down from the high point to Round Top Lake, we saw some nice bright blue *Penstemon speciosus kennedyi* along the trail, while little alpine shooting stars bloomed in moist meadows. Frog Lake is lovely, Winnemucca very nice, but Round Top Lake and the surrounding country is truly exquisite. Here we were shown the low juniper that grows along the lake's edge. It looked like a form of *Juniperus communis saxatilis.*

The way down from Round Top Lake to Woods Lake is most scenic! The trail loops down from one mountain park to the next lower one, always with distant scenic views. The group strung out, some taking a route along the creek, others drifting from one party to another, chatting and looking at whatever they came upon of interest. It was estimated that we had seen more than one hundred and fifty showy species during the day.

BOOK REVIEWS

PRIMROSES AND SPRING. By Doretta Klaber. 125 pp. and 70 line drawings by the author. Published by M. Barrows & Company, Inc., New York, and distributed by William Morrow & Co., Inc. Price $4.50.

Again using her rare combination of talented artist and writer with long years of gardening experience in growing and experimenting with the many types of Primroses (Primula species and hybrids), Doretta Klaber has produced a gardener's book on Primroses. Anyone who has read Mrs. Klaber's *Rock Garden Plants* or *Gentians For Your Garden* knows what to expect. *Primroses and Spring* is more of the same style of gardener to gardener talk, not a scientific report.

All of the cultural information is specific from actual experience in her own garden at Quakertown, Pennsylvania. Impartially she reports her successes and her failures. A word of caution to the beginner: Mrs. Klaber's easy to grow primroses may be your impossible ones and her impossible ones may be your easy ones, as the conditions and climate in your garden will control your practices. Here in the Pacific Northwest, with a little special attention, most of her failures can be successes.

Some of the author's enthusiasm and love for the plants and for gardening is bound to rub off on you as you read of her experiences through the seasons of primrose bloom and the tasks each season brings.

Her descriptions are not in the terminology of the scientific botanist (even I can understand them); but her drawings of primrose plants are remarkably accurate and true to character. There is a line drawing for almost every species and hybrid mentioned. These drawings are the most valuable part of the book for both the amateur and the professional.

There is a chapter on companion plants for Primroses. Also, some very good ideas are advanced that may work in your garden as they do in hers.

HERBERT DICKSON

THE GENUS LEWISIA, by R. C. Elliott. Published by the Alpine Garden Society, London, 1966. $1.70.

A monograph on the *Lewisia* genus has long been overdue. This little book of 76 pages, 34 black and white plates and 15 line drawings is crammed with valuable information. The author, for sake of organization, has wisely presented the text in three parts. Part I includes the introduction, a key based on growth habits in nature and a very useful index listing the 16 valid species in addition to varieties, subspecies and cultivars. Part II, entitled "Lewisias in the Wild," contains a simplified botanical description, supplemented by field notes contributed by contemporary American collectors and growers. Part III describes Lewisias in cultivation and contains, among other things, interesting information on chromosome count, an informative run-down on hybrids, and a plea for caution in hanging pet names on them.

The numerous references to people and places, and good writing gives it a warmth and style quite often lacking in technical preparations. In footnote reference to such as Heckner, Howell, Kellogg, Congdon, et. al., we are reminded of the great passing parade of western history to which Lewisias have been the silent spectators. Accounts of such fascinating places as Cook and Green Pass, Feather River, Seven Devils Mountains and Quinn Canyon Range, to mention a few, is news that will make any collector restless.

Descriptions of some of the rarer Lewisias such as *Lewisia disepala, L. congdonii, L. kelloggii, L. sierrae,* and the rare *L. maguirei*—discovered in 1945 in the mountains of Nevada—add a tasty frosting to this already spectacular genus. Most of the species are illustrated by black and white photographs of good quality; many taken in the field.

The errors have been held to a bare minimum. References to the Lewis and Clark expedition date is two years off, and late in the text a wrong page listing in reference to the index is inconsequential.

Even though the author gives due credit to American contributors, his task has been no less Herculean in compiling a text from the other side of the Atlantic. And if he is envied, which he deserves, perhaps Americans can take refuge in the old cliché about being too close to the trees to see the forest. Lewisia buffs, be they garden variety, collector, or botanist, will be in Mr. Elliott's debt for some time for the commendable job he has done.

ROBERT C. PUTNAM

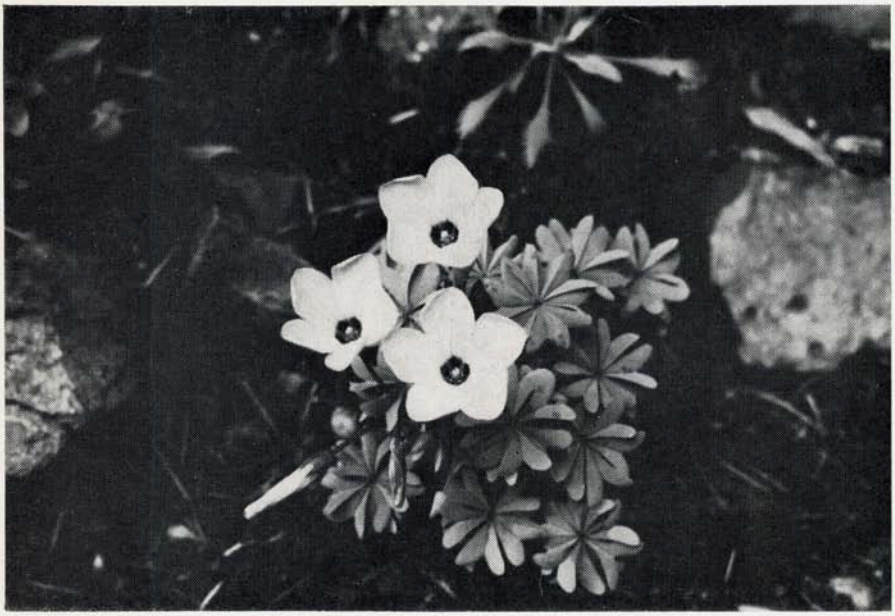
OXALIS ADENOPHYLLA

FRANCES KINNE ROBERSON, *Seattle, Wash.*

Description fails to do justice to the many charms of *Oxalis adenophylla,* a perennial of short stature which is variously given as, five or six inches. Its long-stalked gray leaves rise from a roundish bulb-like base, each leaf having as many as twelve obcordate leaflets which unfold fan-like in the sun, giving the leaf a total diameter of an inch-and-a-half.

The flower stems rise from the base among these leaves and to about the same height, with a solitary lilac-pink flower opening like a fairy goblet atop each stem. A maroon eye conveys the illusion of a drop of wine left in the bottom of the tiny chalice.

This very hardy oxalis was introduced from Chili in 1905 and has been a good subject for alpine house culture as well as for the sunny rock garden. Propagation is by offset bulbs which may be removed every two years in March and potted up or planted out close to the surface in well drained gritty soil with leaf



Harold Miller

Oxalis adenophylla

mold or peat moss added.

One plantsman suggests a ground cover of *Thymus serpyllum* near the bulbs, but care should be exercised to keep open ground in the immediate vicinity of them.

The easy culture of *Oxalis adenophylla* recommends this captivating gem which would enrich our rock gardens if more frequently used.

OMNIUM-GATHERUM

A glance at the listing of the Regional Chairmen on the inside front cover will reveal several new Regions and the absence of some that were there in the last issue. The editor is never at any stated time fully informed of the details of organizational shiftings or membership trends. Seemingly the state of both is too fluid to allow of any very definitive reporting. However, there are evidences in reports and letters received by the editor of organizational activities at the sectional level in southeast Connecticut, Westchester County, New York, in Michigan, California, and other areas. Sections are theoretically subdivisions of regions, but why the members in one area are grouped in a region and those in another in a section is somewhat baffling. The vagueness of organization, the undefined geographical allocation of members to section and region (sometimes known as units) and the overall informality that pertains to all, or nearly all, facets of our Society have proven to be among its greatest charms. As a Society we concentrate on certain types of plants and their culture, and that is as it should be.

Here in the Northwest if we attempted at our monthly meetings to follow Robert's Rules of Order we would lose much of our attendance. For some twenty years of the editor's experience, no minutes of meetings have been kept to be read at the following meeting, no financial report made, except, once in a while, a member will ask how we stand financially. The answer usually is, "We have $200.00 left, or $100, or $50. If the answer shows too little, immediately we

organize another plant sale for the near future, have a lot of fun, slightly rearrange the local plant population, and fill up the treasury again. This may not be businesslike nor good management, but it keeps our members coming to the meetings, whereas if we spent the first hour of each meeting going through the tedious rigmarole of minute reading, financial reports, committee reports, etc., we would have 14 or so present instead of the 60 to 80 as is usual.

We might explore a bit the reasons for holding these meetings. What is the object of the gathering? What is expected or hoped to be accomplished? In the Northwest we meet to further the art of rock gardening, currently a subject with many ramifications. We meet to exchange all manner of individually acquired information concerning those elements which, when put together in proper proportion, result in a rock garden in any one of its variety of forms. We meet to feed the flames of friendship, to cement new friendships, to welcome new members and guide them, should they be only, as yet, aspiring rock gardeners, in the way they should go. The adhesive that holds us together as an organization is love; love of that section of the plant world that is essential to rock gardening; love of the earth itself, its soil, its waters, its sunshine and its moving air; love of work, the work that gardening demands and which in itself is its own reward. There is also the love of good garden form and of the kaleidoscopic shifting of form, color, and texture as the seasons blend one with another. Because we love all these things, we love our fellow gardeners, especially those within our loosely knit organization. So we meet regularly and often. We dispense with the non-essentials, or keep them to the barest minimum. We plunge headlong into matters botanical and horticultural and when we leave we are better informed and greatly inspired and as a result we may, some of us, become better gardeners.

Peter J. W. Debye, Nobel Prize winner and one of the world's leading physical chemists, and a member of the American Rock Garden Society, died Nov. 2, 1966, at the age of 82. Professor Emeritus (Chemistry) at Cornell University, Ithaca, New York, he was known to eastern gardeners for his interest in the hardy cacti, and his splendid collection of them at his home in Ithaca. W. J. Hamilton, Jr., Professor Emeritus (Zoology) at the same university (he is also an ARGS member) writes that the Society has lost one of its most distinguished members. He said, "His loss is a tragic one not only to our country but to the world at large."

Another of our older members has left us. One way to combat the sinking feeling such news gives us is to contemplate a fact that is little known and seldom mentioned. It has to do with members who, in spite of lengthening years, are so filled with the joy of life and the urge to "do while there is yet time" that they are accomplishing, or planning to accomplish, projects of such magnitude that mere contemplation of them would stagger the resolution of most of our younger members. These older members are products of the 19th century rather than the 20th and as such possess many of the virtues of that more slowly moving age.

Many of these members, both on the near and the far side of eighty, are doing worthwhile work along horticultural, educational, and literary lines. These are in the age group variously referred to as Senior Citizens, retired persons, the elderly, old folks, has beens, pensioners, etc. Surely this group has earned a more dignified epithet; especially those who are truly alive. They are the ones who have a serious job to do and are doing it; a book to write; an experiment to make; a nursery to establish, or keep going successfully; a faculty position to maintain; a mountain to climb; a plant to discover, or a more intensive look into one or more of the many mysteries of life yet tantalizing us. Each one of you know one or more of these doughty members. How can those of us who are younger show our

appreciation and our love for them?

Bear in mind that all of these fine people are gardeners and as such they have learned that life is not measured in years, but by accomplishments and by the spirit with which the future is faced. They have learned from the garden. They respect those plants that produce year after year and disparage mere annuals and biennials. It is not enough to do a good thing once, or even twice and then give up. Only perennials have won their respect. Again, what can we do for these people who are so alive? The very least we can do is to use a collective name when referring to them which will typify the spirit, the enterprise, the daring, and the hardihood of these beloved oldsters. What shall that name be?

They are the hardy perennials of the garden of life whose flowering continues even into their winter. How shall we honor them . . . now? True it is that we have the newly instituted award system. But that is not enough. If you know one of our members on the far side of 75 who is doing honorable work for which our Society should be proud, will you please find out the particulars, prepare an appropriate article, with pictures, if possible. Then with the permission of the person affected, of course, please send the article to the *Bulletin*.

Two mistakes were made, both by one or more members of the staff of the publisher of Doretta Klaber's new book, *Primroses and Spring* which is reviewed in this issue. Certain wording on the dust cover, or jacket, of the book is in error. "This is the first book published in this country devoted entirely to primroses." This is the erroneous statement. Mrs. Klaber states that had the copy of the jacket been submitted to her for proofreading, as it should have been (that it was not was the publisher's second error) she would have caught the misstatement and made the necessary correction.

BACK VOLUMES OF THE BULLETIN

We have for sale an accumulation of back volumes and individual numbers of the BULLETIN. The available material is listed below.

VOLUME 1 Individual number 2
VOLUME 7 Individual number 4
VOLUME 8 Individual numbers 3, & 4
VOLUME 9 Individual numbers 1, 3, 5, & 6
VOLUME 10 Individual numbers 2 & 4
VOLUME 11 Individual numbers 1, 2, 3, & 4
VOLUME 12 Individual numbers 1, 2, & 3
VOLUME 13 Individual numbers 3, & 4
VOLUME 14 Individual numbers 2, 3, & 4
VOLUME 15 Individual numbers 3, & 4
VOLUME 18 Individual numbers 2, & 4
VOLUME 19 Individual number 4
VOLUME 20 Individual number 2
VOLUME 21 Individual number 3
VOLUME 22 Individual number 3
VOLUME 23 Individual numbers 1, 2, & 4

All individual numbers are one dollar each.

A large accumulation of certain numbers permits us to offer ten different numbers, the Society's selection, for $5.00. (Order the "Bargain Package.")

Postage will be paid by the Society.

Members desiring issues containing articles referred to in the index by volume and page number may obtain the issue, if available, by referring to volume and page number in ordering. Order from the Secretary. *Please make checks payable to* —

American Rock Garden Society

Ridge Farms Road **Norwalk, Conn. 06850**